Deci-belles:

Gender and Power in Sound Engineering for

Popular Music in New Zealand

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Abstract

This thesis is a study in gender relations in sound engineering for contemporary rock music in New Zealand. I contend that music audiences and music industry workers alike discursively construct sound engineering as a masculine activity. Men greatly outnumber women in the field of sound engineering, and because the occupation is vertically segregated by gender, men also occupy positions of authority. This thesis explores the problems women face navigating a male-dominated occupation, and the tactics they employ to establish themselves within the industry. Through semi-structured interview processes with both male and female sound engineers, I was able to identify key themes in their perspectives on their work. Women sound engineers face entry level and on-the-job gender discrimination. I argue that the technological tools they use are seen as being at odds with femininity. They persist despite this, fulfilling their desires for creative input into music. As part of a collaborative team in the production of local rock music, sound engineers are in the position to help shape its sound. The power exercised within music production is not equally accessible to women, and this is one factor among many which upholds gender inequality in the music industry.
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# Deci-belles: Gender and Power in Sound Engineering for New Zealand Popular Music

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1. Introduction

In the production of rock and popular music, sound engineers are, along with producers and musicians, a vital part of the creative process. They have input into the nature of the sounds, whether at a live performance or in a musical recording. In this way, they contribute to the process of meaning-making: the sounds formed in the music (by producers, sound engineers and musicians) affect what an audience hears. It is then up to listeners to decipher the sounds, and they might not do so uniformly, but their interpretations will always be influenced and limited by the bounds of the music produced. The sound engineer’s ability to help shape meaning, or what Foucault might call ‘truth’ or ‘knowledge’, in music implicates him/her utterly in relations of power (1980, p.119). The sound engineer exercises power, and in the process produces ‘truth’ in the form of music. Given the relationship of the sound engineer to the construction of meaning in music and therefore to power, it is pertinent to investigate the gender discrepancies within the occupation. Women are in the minority as sound engineers (and for that matter as producers and pop/rock musicians), with the result that they are seldom in the position to shape meaning as producers of music. As members of the audience, they have some license to construct meaning via their consumption practices, but their near absence from musical production suggests a further limitation on the meanings that are made. Their marginality also indicates other problems. Who gets to influence meaning in musical production? What truths are they constructing? Clearly, in this situation men are in a better position to shape musical meanings than women, and it stands to reason that
the truths they produce are swayed by gender. Ultimately, this imbalance suggests a gendered discrepancy in musical power.

How has this situation come into effect, and what sustains it? How have men arrived at their privileged position in musical production, and what mechanisms allow them to maintain this position? Why are women not prominent in sound engineering? In New Zealand, legislation introduced in the 1970s and 1980s sought to install equal job opportunities for individuals regardless of gender. It outlawed sexual harassment and other forms of gender discrimination. And yet, the phenomenon of gender-skewed occupations continues. The issue would seem to hinge on the notion of ‘choice’, which I interrogate in section 3.4.2. Therefore we must also ask, what makes sound engineering an unattractive choice for the vast majority of women?

One’s occupation is often represented as a matter of personal choice. In sound engineering, men are more likely to make this choice than women. This may initially appear to be the end of the inquiry: men have a greater interest in becoming sound engineers because of a perceived difference between the sexes. This line of questioning is of limited use, as it leaves a lot of other important questions unanswered. What might constrain women from making such a choice? If there are constraints that limit women’s involvement in musical production roles such as sound engineering, is it reasonable to present the situation in terms of personal choice at all? Women are entering the occupation in fewer numbers than men, so we might alternatively ask why they do not see the work as an inviting prospect. However, a comprehensive analysis of gender relations in sound engineering should also investigate the women who do pursue sound engineering as an occupation. Women become sound engineers, even though they will be in the minority,
gender-wise, in the field. In recognising this point, we are led to account for the agency women have to shape their lives despite adverse conditions. I am interested in why some women work as sound engineers. What draws them to this line of work? What are their experiences in the job? Do their experiences differ in any way from those of male sound engineers? What do they find fulfilling about it? What does gender mean to them in this setting?

In grappling with these questions, I aimed to contribute insights to the growing field of gender analysis in music studies. I have drawn on the extant work, of which I presently overview, significantly.

1.1. Research Background

The most pertinent studies have been ethnographic and sociological. Rigorous social research of women rock and popular musicians (Andolsun 2004; Bayton 1989, 1990, 1997, 1998; Carson et al 2004; Clawson 1993, 1999a, 1999b; Farrugia 2004; Groce and Cooper 1990; Jennings 1999; Leonard 2007; Reddington 2005, 2007; Warwick 2007) accounts for the constraints placed upon women who wish to enter the male-dominated field of rock and pop musicianship, and how they negotiate these constraints, thus I cross-reference these findings with my own. There are numerous commonalities, as well as nuances, which I will tease out in later chapters, especially throughout Chapter Five. Some researchers have studied women electroacoustic composers (Armstrong 2001; Bosma 2003; Grigsby 1983; Hinkle-Turner 2003, 2006; Johns 1988; McCartney 1994, 1995, 1996, 2000, 2003; Metzelaar 2004; Rosen 1986). Electronic and electroacoustic composition involves the engineering of sound: electroacoustic composers are also, of necessity, sound engineers. Thus the study of women in electroacoustic composition informs my own research, particularly where these authors explore the tensions between femininity and technology, as will become more apparent in section 4.3.6. Masculinity studies in pop and rock
music (Bannister 2006a, 2006b; Coates 2002; Jarman-Ivens 2007) inform my examination of the construction of sexual difference in sound engineering. Research has also been conducted in other male-dominated music occupations such as conducting (Lawson 1991), as well as descriptions of music industry professions that are weighted heavily by a particular gender (Negus 1992; Steward and Garratt 1984), and these help me to contextualise the gender dynamics of sound engineering against the larger picture of gender segregation in the wider music industry. Also important, but to a lesser degree, are ethnographies of fan practices that pay particular attention to gender (Rhodes 2001, 2005; Schippers 2000, 2002; Shuker 2004; Straw 1997). While I am concerned with the production processes of popular music, the inter-relationship between production and consumption cannot be ignored, particularly in light of the fact that there is no clearly marked boundary point between them. Only two other studies concern themselves with gender and sound engineering (Diamond 2005; Sandstrom 2000), and they begin to question women’s fraught relationship with technology. But neither excavates to the depth necessary to explain the myriad of ways in which gender produces, and is produced by, sound engineers for pop and rock music. My study aims to do just that.

The existing literature that elucidates the intersections of gender and music provides a wealth of insights into the gender imbalances in musical work. Differences in gender socialisation, problems of sexism and sexual harassment, the discursive production of technology as gendered, and gender performativity in musical work are theorised and discussed in much of this research. However, it will become clear that I have new insights to contribute to these areas, and perhaps my choice of research topic enables this. For example, only three of the theorists mentioned above adequately engage with the ample literature of feminist labour studies (Andolsun 2004; Clawson
One of the many concerns of feminist labour studies is accounting for, theorising and challenging gender segregation in the workforce (see Bagilhole 2002; Charles and Grusky 2004; Corcoran-Nantes and Roberts 1997; Dunn 1997; Glover and Kirton 2006; Hill 1994; Hochschild 1983; Jenson et al 2000; Liff and Wajcman 1996; Lipman-Blumen 1976; Murray 1994; Reskin 1997; Reskin and Roos 1990; Reskin and Hartmann 1986; Rosenberg et al 1997; Swerdlow 1997). Perhaps because the music industry is so pervasively staffed by men, gender segregation has seemed too obvious to explore. It is also possible that the artistic nature of music-making facilitates a blindness to its status as work. Janet Wolff critiques the separation of artistic work from other forms of labour, and I concur with her when she writes, ‘art is always “manufacture”. The mystification involved in setting artistic work apart as something different from, and usually superior to, all other forms of work can be combated by showing that all forms of work are (potentially) creative in the same way, and that artistic work, like other work, loses its quality as “free, creative activity” under capitalism’ (1993, p.13). To this end, I contribute an analysis of sound engineering as stratified by gender, and examine the mechanisms by which this takes place. These mechanisms include but are not limited to sexism and sexual harassment.

Sound engineers increasingly come under academic inspection for their pivotal position in the creation of pop and rock music. Even in the 1970s, their role had begun to be reassessed: once thought mere technicians, they were found to contribute to the artistic production of music as a direct result of the changing historical contexts of culture and society, the restructuring of record companies, and technological developments (Kealy 1974, 1982, 1990). Albin Zak brackets sound engineers under the rubric ‘recordists’, arguing that every individual who participates in the recording of popular music, whether
songwriters, arrangers, performers, engineers or producers, can be encapsulated by this term (2001, p.xii). A number of other scholars also recognise the team effort that underpins the production of pop and rock music. Antoine Hennion (1983) asserts that a group of ‘creative collaborators’ (musicians, producers, and engineers) attempt to anticipate audience’s listening pleasures when creating a pop song in order to ensure its commercial success, and Jones (1992) and Warner (2003) concur.

‘Recordist’ is a useful term for an ethnography of the recording studio, whether a home recording studio or a professional one, nonetheless, I prefer not to use the term in my study as my focus is on sound engineers who work as recordists as well as sound engineers who practice their craft at live events. While it is important to distinguish between the work of recording engineers and live sound engineers, as the tasks and the fruits of their artistic work differ, I incorporated both in my study. My reasoning hinges on the small size of New Zealand’s population. It simply does not have the requisite number of inhabitants to sustain a large market for local recorded music (Shuker 2008, p.272) or an extensive live performance circuit. Because of this milieu, many New Zealand sound engineers face the reality that either they must branch out into other kinds of sound work, otherwise they may not secure much work (and therefore crucial practical experience) or accrue much income. Thus, while there are a privileged few sound engineers who specialise either in recording or live sound, other New Zealand sound engineers see fit to become jacks-and-jills-of-all-trades.

The overlapping nature of the tasks of ‘recordists’ makes the work of sound engineers particularly difficult to define. Complicating matters further (though in a way that casts light on the social power imbedded in pop and rock music production), recent ethnomusicologists have declared sound
engineering as ‘the practice – by individuals, groups, institutions, corporations, or governments – of using sound technologies to engineer meanings, functions, and social strategies in musical cultures and in the world at large for strategic cultural, aesthetic, political, and economic ends’ (Greene 2005, p.4). In my study I purposefully employ a narrower definition that focuses on sound engineering in the more traditional sense of work that involves the technical manipulation, recording, balancing and/or amplification of sound (and as mentioned above, my study is concerned with New Zealanders who work as recording engineers or as live sound engineers). This way, I circumvent confusion over the deployment of terms. But Greene’s explanation is not altogether dissimilar to Teresa de Lauretis’ concept of ‘social technologies’ which I will return to in section 4.2.2. There I argue that sound engineering is a social technology, and given his emphasis on the strategic deployment of sound technologies by individuals and groups, I suspect Greene and I differ only in terminology on this point.

Judy Wajcman’s (1991) three-pronged ‘working definition’ of technology is useful for fleshing out our understanding of sound engineering. Technology for Wajcman encompasses three aspects: the physical objects themselves; the technical knowledge required to design, make, use and repair the physical objects; and the application of the physical objects. In other words, in sound engineering, technology would refer, for example, to the mixing console. It would also refer to the knowledge involved in designing, making, using and repairing the mixing console. Technology is also what sound engineers do with the mixing console, its application.

There is some debate here about the applicability of the term ‘engineering’ to sound engineering. It might be argued that the manipulation of sound is more accurately described as technician work, distinguishing it from ‘engineering proper’ which refers to the design, analysis and construction of music technology. The sound engineers that I refer to in this study do not necessarily perform these tasks. They refer to themselves and are commonly referred to as “sound engineers”, thus I have adopted this language for my study, for ease of communication. In any case it could be argued that the term
Some scholars have explored the discourses through which sound engineers make sense of their work (Meintjes 2005; Porcello 2004, 2005). This research informs my own, in that I identify the relationship between discourse and power, and explore the ways that sexual difference is discursively produced in sound engineering work. In fact, the concept of sexual difference as a discursive formation theoretically underpins this entire study, and in sections 2.5.1. and 3.3.1. I define what this means. Other studies have produced histories of sound recording (Cunningham 1996; Jones 1992; Malsky 2003; Millard 1995), essential as a contextual grounding for understanding the work of sound engineers and the tools they employ. Insight into the work of music producers (Hennion 1983; Moorefield 2005) pervades my study, for as Zak (2001, p.xii) notes, the work of ‘recordists’ such as recording engineers and producers tends to overlap at times, and I found that a number of recording engineers in New Zealand have taken the production reins in the absence of a formal producer.

Only two authors have focused specifically on the gender dynamics of sound engineering (Diamond 2005; Sandstrom 2000), while two others reflect on this relation as it affects women musicians (Bayton 1989, 1998; Leonard 2007). Most of the texts cited above deal only with sound recording (exceptions are Bayton 1989, 1998; Leonard 2007 and Sandstrom 2000), thus the arena of live sound engineering is at present underexplored in musical studies. It seems that many researchers have taken great pains to assert that pop and rock music recordings are at least as important as live shows, but in doing so have neglected the sphere of live performance altogether. It is my contention that, for so long as pop and rock musicians continue to play live and tour, gigs and

‘engineering’ is apt to describe the work sound engineers do, concerned as they are to manipulate and design sound.
therefore the artistic input of front-of-house and monitor engineers remain an important part of popular music production that warrant investigation.

Gender is the focus of Sandstrom’s (2000) study, and she introduces some of the issues that women in live sound engineering experience as gendered, such as power, access, and technology. She contends that men exert power in sound engineering in two ways: firstly, by shaping the sound of the music, and secondly through dominion over technology to the exclusion of women. Making the links between gender, power and music technology is crucial for understanding sound engineering, however one cannot help but notice that Sandstrom’s deployment of the term ‘power’ is confusing, because she does not define it. Another respect in which our studies differ is that Sandstrom’s is specific to a North American context, and this is evident in her involvement in the Michigan Women’s Music Festival, a large-scale annual all-women event that features many women performers and attracts thousands of female fans. Such a large-scale all-women music festival would not be viable in New Zealand. Furthermore, she makes assertions about men’s motivations for engineering sound, and about women sound engineers’ superior knowledge of sound through formal education, without showing any evidence of finding out about men’s experiences in sound. This is one important area in which our methodologies and therefore methods differ, as I investigate men’s experiences.

Gender and ethnicity are inextricably linked, and this facet of the music industry is brought to the fore in Beverley Diamond’s ethnography of Native Americans recording music in a studio (2005). Two particularly gendered observations stand out: firstly, that at the same time that Native American women musicians were found to be challenging definitions of music
production by emphasising their artistic input into the recording process, such as ‘choice of collaborators and the album concept’, they are reinforcing the masculinisation of technical work when they allow men to control the recording technology (Diamond 2005, p.132). Secondly, a female music producer (Pamela Morgan) had her authority undermined by male musicians in the recording studio, who would only take directions from her if her male assistant issued them. In contrast, women musicians responded to Morgan much more positively (Diamond 2005, p.127). These examples may not immediately appear to demonstrate the salience of ethnicity and gender in the processes of musical production, but Diamond is cautious not to extrapolate her findings to the music industry more broadly given the paucity of research in this area. At present, most New Zealand sound engineers are white and of European extraction. That this situation has come about indicates that racism is a latent force in the popular music industry, despite New Zealand’s multicultural make-up. Gender discrimination and ethnic discrimination are unique forces, but they are intertwined in many ways: it is not simply that men are prevalent in sound engineering, but that white men are predominant in sound engineering. There is not scope within this thesis to provide a sufficient analysis of this issue, as I will explain in Chapter Two. However, New Zealand’s history as a nation was established through British imperialism and the colonisation of the Maori, New Zealand’s indigenous people. Knowledge of the dynamics of ethnicity in popular music production would benefit greatly from further investigation of the situation of Maori in sound engineering.

Technology is utterly salient in the world of music-making, and I follow other gender scholars in investigating this issue (Bradby 1993; Brown 1995; Dickinson 2004; Gay 1998; McCartney 1994, 1995, 1996, 2000, 2003; Marsh and West 2003; Taylor 2001). While these theorists argue that technology is
gendered, and that the more complex the technology, the more likely it is to be gendered masculine, I question the language used to talk about this phenomenon, wondering how much it helps to maintain the gender imbalance. In addition, I note the preponderance of cyborg theory (see Haraway 1991) in gender analysis of music technology, but interrogate its value for reinvigorating women’s relationships with technology. The work of Judy Wajcman (1991, 2004) emphasises technology’s mutual influence with society – and gender – and is therefore more realistic and useful than the utopian cyborg metaphor. De Lauretis (1987) proposes an even broader definition of technology, which encompasses social technologies which produce gender, and is therefore highly relevant too.

New Zealand is the locale in which my research took place. Other researchers interested in sound engineering and gender relations for pop and rock music may discover my findings have some resonance. But, given New Zealand’s marginal status in the international popular music industry, it would be unwise to generalise my findings too broadly, to extend them unreservedly to music industries in other contexts. In any case, it is worthwhile to give an overview of the extant popular music literature – both academic and more populist – that focuses on New Zealand’s national context.

Of particular pertinence to the study of gender in sound engineering is the issue of identity. In this case, issues of gender (and ethnic) identity come to the fore, and I pay some attention to the processes through which identity is constituted. This has also been a concern of other New Zealand music scholars such as Matthew Bannister (2006a, 2006b). He recognises gender and ethnicity as socially constructed and multiple, noting one lacuna of gender studies of popular music, when masculinity is presumed to only connote one set of characteristics. This is problematic when applied to popular music, for it
tends to reduce rock and pop masculinities in ways that have little relevance for the lived experiences of many male musicians. He is also critical of instances where masculinity studies have focused on men’s bodies in ways that reiterate mind/body dualism. Mind/body dualism, amongst other gendered binary distinctions such as nature/technology, occupy me theoretically. I too have reservations about reductive characterisations of masculinity and femininity, which I challenge in section 4.3 (see also Pritchett 2002 and Zemke-White 2000, for their respective engagements with gender identity and ethnic identity in the New Zealand popular music context).

Academic treatments of New Zealand popular music have contributed to debates about national identity. Crucial to Shuker’s (2008) argument is a critique of the notion that music from New Zealand expresses something intrinsic about New Zealand, thereby contributing to, and strengthening, a New Zealand cultural identity (see also Robertson 1985, who interrogates the notion of the ‘Dunedin Sound’). The question of an intrinsically New Zealand musical identity is elemental to Tony Mitchell’s examination of New Zealand popular music (1996, see also 2003). The expression of ‘identity’ in musical texts is of marginal relevance to my study as the aim is not to address whether, how or what music signifies. Moreover, it does address identity construction, thus I refer to Shuker’s and Mitchell’s arguments only broadly, insofar as they relate to this issue.

While I am sympathetic to the notion of New Zealand popular music identity, what is missing from both Shuker’s and Mitchell’s opposing viewpoints is an interrogation of the term ‘identity’. In short, Mitchell’s positing of New Zealand identity seems essentialist (see sections 2.3.2. and 3.3.3. for an in depth discussion of identity and essentialism). On the other hand, Shuker’s assertion that there is little intrinsic to the sound of New Zealand music that
makes it distinctively local, runs counter to the experiences of both musicians and fans, who are involved in the processes of meaning construction and may well feel that the music reflects something fundamental about the New Zealand experience. Identity is a fiction, but it is a meaningful fiction that has a lived and influential existence. Identity is constructed in those moments when meaning is made, in the processes of the production and consumption of music. In other words, when recordists record, when performers perform, when fans listen, they respond to and construct the social, historical, geographical scapes they are embedded in. National identity is a discursive product of musical meaning-making. This is true also of gender and ethnic identity, and will be discussed further in section 2.3.2., with attention paid to relevant social constructionist theories of identity construction.

Other concerns in New Zealand popular music studies have included government regulation and the quota debate (Campbell 2002; Scott 2008; Shuker 2008; Shuker and Pickering 2004). In addition, more populist texts have profiled New Zealand rock bands (Davey 1996); and provided various histories: of rock between 1987 and 2007 (Shute 2008); of rock and popular music since the inception of rock and roll (Dix 2005); of local punk and post-punk scenes between 1977 and 1981 (Churton 1999); of popular songs (Spittle 1997); of popular music in Auckland during the 1950s and 1960s (Watkins 1995); and of major and minor recording companies and distributors, the introduction of recording technology into the country, and industry awards (Staff and Ashley 2002). These texts provide ample geographical context, but are of less direct relevance to my line of inquiry.

(1990), Negus (1992, 1999), Robinson et al (1991), and Stratton (1983). These studies are variously concerned with elucidating the structures in place, the occupations, working practices and beliefs of individuals and groups within major and minor record companies as well as other personnel working in institutions involved with the production of popular music such as the print media, radio broadcasting, record stores and recording studios. They offer indispensable analyses of the professionalised, international (corporate) music industry and serve as a comparison point for my study. Negus (1992) and Kruse (2003) are of particular interest for their considerations of the concentration of women and men in different music industry occupations.

The issue of power, and its closely connected manifestation, discourse, is of vital importance to the study of sound engineering. As I mentioned above, sound engineers are in the position, alongside musicians and sometimes producers, to shape musical meaning and construct truth. In this, they exercise power. Power, too, is elemental in the working relationships between sound engineers, musicians and others employed in music industries. The discourses produced and circulated in these working relationships do not just signify how these workers see the production of popular music - they help to give the milieu form and meaning. We can excavate these discourses to discover what meanings have been assigned to gender in popular music production, and to what extent they are subject to contest and revision.

Power in sound engineering is often assumed to be straightforward, one-dimensional, self-explanatory and not worth defining (for example, Kealy 1974; Sandstrom 2000). Some ethnomusicologists have, on the other hand, explored discourse (for example, Porcello 2004, 2005; Meintjes 2005) in sound engineering, sometimes in a way that conceals its relationship with power (this is not true, however, of Greene 2005). My interviews with sound
engineers suggest that an account of power that focuses only on one or two of its dimensions will not suffice. Feminist theorising of power is useful because it teases out the multifarious guises of power, particularly the work of Amy Allen (1999). Through critical examinations of the theories of Michel Foucault, Judith Butler and Hannah Arendt, Allen highlights each theorist’s contribution to a tripartite model of power: power-over, power-to, and power-with. This model is indispensable for examining gendered power relations. It encompasses the oppression women face, the capacity they have to resist oppression as individuals, and their potential to overcome oppression through practices of solidarity. The gender relations of sound engineering can only be adequately theorised with reference to each of the three aspects of this model.

I also show that Jacques Attali’s four phases of musical production (2003) - an attempt to account for different types of power in the music industry - is not as convincing as applying Allen’s concepts of domination, resistance and solidarity, because he characterises his musical subjects in absolute terms. On the one hand he deigns people to be utterly subjected by representational and repetitive capitalist modes of production. But on the other hand, he depicts a utopic future in which new musical technologies will liberate everyone so that they may freely compose as they wish. The advantage of Butlerian and Foucauldian theories of power is that they acknowledge the push-and-pull between freedom and constraint, rather than casting the concepts as autonomous. Attali’s technological determinism further detracts from the applicability of his theory. Readers will find a critique of technological determinism in section 4.2.1.

This study contributes to the existing body of literature in a number of ways. The work of sound engineers is still under-researched in popular music
studies and I extend this scholarship by furthering our understanding of the role of discourse in defining what a sound engineer is and what he or she does. The recent convergence of gender studies and popular music studies has lead to a proliferation of research, most of which has been concerned with performers and fans. I broaden the scope by focusing on gender in popular music production, an area neglected by other researchers. My insights go some way to explaining manifestations of gender stratification in the music industry, which have previously been ill understood. I also contribute a unique case study of technical work in the creative arts to the well-established area of feminist labour studies.

1.2. Overview of Argument

It will become clear that the milieu of sound engineering is utterly imbued with power. This thesis demonstrates that the underlying reason for women’s marginality in sound engineering is because the occupation is a site for the production and circulation of discourses of sexual difference. These discourses assert men’s suitability for the job, based on notions of technical capability and perceived superior upper body strength. In the case where skills and characteristics perceived as traditionally feminine are required, these are discursively re-positioned as gender neutral, which effectively prevents any feminisation of the occupation, maintaining it firmly as masculine. But women are often presumed incompatible with sound engineering technologies, and their bodies unsuitable for heavy lifting, and therefore they are not considered potential sound engineers. The discursive exaggeration of sexual difference leads to a situation where women are discouraged from entering the occupation. When they do attempt to become sound engineers, they are met with a series of gender obstacles that their male counterparts overwhelmingly do not face, such as being passed over for volunteering and employment opportunities, and, if they do acquire work
they experience sexist attitudes, institutionalised sexism, discriminatory behaviours, sabotage and even sexual harassment.

Fortunately, the constraints on women in sound engineering are seldom absolute. A few women persist to overcome these obstacles and stake out their position in the music industry. As individuals, they resist the discourses of sexual difference and show that women can be technologically adept, that women do have the capacity to lift heavy objects, that women can in fact master the skills of microphone placement, of equalisation, of balancing and of sound mixing. Many are drawn to sound engineering because it enables them to shape music: the skills of sound engineering afford women musicians creative control. However, women’s resistance in sound engineering does not at present appear to be restructuring the gender configurations of the occupation. They are still a minority of employed sound engineers, at the moment many prefer to exercise their skills at an amateur level as local musicians.

Though scarce, women are present in the music industry as sound engineers and this is a source inspiration for other women. Once they see women performing a set of tasks, they can imagine themselves capable to the same degree. However, it will take more than role modelling to make sound engineering a gender-egalitarian occupation. For sound engineering to be an attractive job for women, for the discourses of sexual difference to be silenced, requires a concerted effort. Firstly, sound engineers of any gender will need to take on mentorship roles, to take women under their wings and tutor them in their craft. To some degree, this is already happening, but not often enough to make a significant difference. Secondly, group solidarity with women should be sought and embraced. Again, regardless of gender, sound engineers who ally themselves with each other, and labour towards the express purpose of
making their occupation accessible and attractive to everyone regardless of gender and ethnicity, will have some chance at succeeding at this aim. Currently, if the situation remains as it is, with women struggling to gain a foothold in an occupation that does not welcome them except in a handful of very fortunate cases, they are bound to continue struggling against the tide, and will remain under-represented and excluded from the processes of musical production and therefore from an equal share in the production of musical meaning.

1.3. **Method**

The objective of this dissertation is to discover the ways that sound engineers construct their experiences of their work and the music industry, and thus this dissertation is phenomenological in tone, exploring the discursive field of sound engineers’ experiences. In accordance with this, I chose a mixed-method procedure, with an emphasis on qualitative research. I interviewed forty New Zealand sound engineers about their work, both male and female. The interviews were conversational and semi-structured. There were an additional four respondents who were kind enough to answer some questions via e-mail. I also analysed recent issues of *New Zealand Musician* magazine for content, looking for consistencies and differences in the way men and women were represented. This affords a media representation of gender in the national music industry. In addition, I obtained recent statistical data from Statistics New Zealand that indicates the gendered make-up of the music industry. The statistical data help to ground the qualitative data, providing the broader picture of gender segregation in the local music industry. The respondents’ stories flesh out the quantitative data, giving human form to the figures, adding detail, nuance, and subjectivity: views from the ground that

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2 The questionnaire I used is located in Appendix 2.
can be lost amidst the numbers and percentages. This method was consistent with feminist epistemology. Feminist research seeks to demonstrate the existence of gender inequalities, and can do so through quantitative data. But feminist social researchers have also been wary of the way social research uses participants, reducing them to quotes, patronising them and objectifying them (Stanley and Wise 1993). Of course, feminism has long been concerned with critiquing the objectification of women (Mulvey 1975) and so feminist social research aims to minimise the objectification of human respondents.

1.4. **Chapter Outlines**

In Chapter Two, I illustrate the method in more detail and describe the feminist epistemology that informed the method. I have drawn on the insights of social researchers such as Dorothy Smith (1987), Linda Tuhiwai Smith (1998), Joey Sprague (2005), Shulamith Reinharz (1992), Marjorie DeVault (1999, 2002), Liz Stanley and Sue Wise (1990, 1993), Kathryn Anderson and Dana C. Jack (1991) and Katherine Borland (1991). I also put the social research methods of other gender/music scholarship under the microscope, weighing up the advantages and disadvantages against my own, asserting the value of mixed-method and mixed-gender research in accounting for gender relations in music occupations.

As I have already mentioned, the analysis of power is indispensable for a feminist account of gender relations in the work of sound engineers. This is the subject of Chapter Three, where I explain the various levels on which power operates. Drawing on the extant body of literature on sound engineering and music production, I critically assess the way ideas of power and gender are produced in these texts. Drawing on the work of Foucault on power and discourse (1972, 1977, 1978, 1980), and Butler on performativity
(1990, 1991), I advance an analysis of the discourses of sexual difference that accounts for the ways women are constrained within the occupation and the individual ways they resist exclusion and marginalisation. While women sound engineers exercise creative control when they use their skills to compose music, this does not mean they have attained what Jacques Attali (1985) terms ‘the age of composition’, a utopic Shangri-La where everyone democratically uses music technology to overturn oppression. Ultimately, I question the ability of women sound engineers to overturn the sexist attitudes and practices that keep them from attaining an equal footing with male sound engineers. For this to happen, a concerted group effort such as that outlined by Hannah Arendt would need to take place.

Chapter Four, ‘Man Machine or Woman Machine?’, considers what feminist musicology has at stake in the debates about the relationship between society and technology. Examining social scholarship of music technology, I expose the latent form of technological determinism that results when researchers neglect to consider that developments in music technology have different repercussions for women and men. Thus technological determinism encompasses a much broader series of attitudes than simply technophobia and technophilia. Chapter Four is also concerned with elucidating the discourses of sexual difference that abound in sound engineering, particularly as they are manifest in talk about technology. Chapter Four challenges the discourse that constructs men as technologically adept and women as technologically incapable. Drawing on interviews, I show that the discourse fails to adequately encapsulate the full range of experiences of technology that both women and men in sound share. Technical ability is, by many accounts from successful sound engineers, not a talent one is born with but is learned through the practical processes of acquiring and building on knowledge and skills. Still, the discourse persists, and can be readily found in the pages of
publications such as *New Zealand Musician* magazine. Symbolism is often used to suggest feminine technical incompetence, and femininity is metaphorically aligned with machines that the implied male reader must ‘master’. The alignment of women with passive machinery renders Donna Haraway’s (1991) ‘cyborg theory’ of questionable use for the analysis of gender in sound engineering, because the image of the female cyborg can easily be deployed in sexist ways, reinforcing female subordination in the music industry.

The discursive construction of sexual difference underpins Chapter Five too. In this chapter, I am concerned with an account of the gender stratification of sound engineering. I review studies of music that scrutinise the gender stratification of music occupations (for example, Bayton 1997, Clawson 1999b, and Green 1997). Figures obtained from Statistics New Zealand reveal the extent of women’s marginalisation from sound engineering and other music industry roles. Sexism, gender discrimination, and sexual harassment make sound engineering an unattractive occupation for women, and the respondents’ reports of sexist attitudes and behaviours express this. I show that discourses which exaggerate and reify sexual differences are at the heart of these sexist processes. While a number of women are seeking to bolster their sound skills through formal sound engineering education, it would appear that audio engineering and live event production courses are looked upon with scepticism by many sound engineers. Thus I question whether education can really further women’s sound engineering career ambitions and lead to the restructuring of the occupation along gender (and ethnically) egalitarian lines.

The final chapter concludes the thesis by explicitly laying out my findings and detailing my contribution to research in popular music studies, particularly feminist musicology and music industry studies, as well as the implications
for feminist labour studies and debates about social research methodology. I presently turn to feminist epistemological and methodological concerns, demonstrating their repercussions for methodological debates in popular music studies, and explaining how they anchor my own method.
2. A Feminist Methodology for a Gender Analysis of Sound Engineering

2.1. Introduction

Feminist epistemologies have burgeoned over the last four decades, and have posed a significant challenge to the way most social research has been and is being conducted. The aim of this chapter is to describe my methodology and methods for investigating the gender relations in sound engineering, with reference to pertinent theories particularly from feminist studies. This chapter begins by explaining feminism’s challenges to traditional social research, noting the extent to which feminist epistemologies have contributed to our understanding of the construction of knowledge and the unique frameworks for data collection and analysis that have been generated from feminist methodological debates. In turn, feminist epistemologies have been questioned, particularly by poststructuralist epistemologies, and I demonstrate how feminist theorists have incorporated and adapted to these challenges to produce highly developed theories for carrying out social research. Following Sandra Harding, I understand research method as ‘a technique for (or way of proceeding in) gathering evidence’, methodology as ‘a theory and analysis of how research does or should proceed’ and epistemology as the study of knowledge (1987, pp.2-3). With this in mind, this chapter is structured into four sections. I attend to feminist epistemologies and their challenge to traditional social research. I proceed to describe the methodologies that feminists have generated in the quest for anti-sexist and feminist social research. I follow this with a critical evaluation of the methods...
used to study musicians and sound engineers in popular music studies, and argue that, to this date, few have adequately responded to the insights of feminist debates in methodology. Finally, I describe the combination of methodologies that inform my study of gender in sound engineering in New Zealand, explaining their advantages and disadvantages for this study and why I chose them, and describe my methods.

2.2. The Feminist Critique of Traditional Social Research

Since the 1970s feminists have been concerned with the objectification of women, that is, when women are symbolically constructed as objects. When women are objectified on the basis of gender, they are in that respect denied humanity and thus rendered unequal with men. Objectification can also take the form of the concentration on one part of a person at the expense of the whole. In a predominantly sexist society, women are objectified when, for example, their appearance is considered more important than any other attributes they may have, such as knowledge, skills or personality. Women are also objectified when men speak on their behalf, denying them the opportunity to speak for themselves, exercise their own agency, or share their personal perspectives. According to Liz Stanley and Sue Wise, women have been objectified in this particular way in social science research (1993, see also Letherby 2003; Smith 1987 and Sprague 2005).

Historically, women’s lives were under-researched in the natural and social sciences, and where they have been the subject of scholarly study, they were often misrepresented (Stanley and Wise 1993, p.27; see also Tavris, 1992). The solution to this problem is not, as feminist social scientists in the 1970s often tried, to simply continue using the same social science research theories and methods and refocusing attention onto women’s lives. Rather, as Stanley and
Wise contend, traditional social science research methods themselves are
inadequate for understanding people in general, let alone women (Stanley
and Wise 1993, p.41). Such methods presuppose an elitist hierarchy of
knowledge and expertise between the researcher and the researched: the
respondents lack the specialist skills that enable them to evaluate and
interpret their own lives, skills that only the social scientist has (Stanley and
Wise 1993, p.7). Thus the subjects of research are patronised: it is implicit in
traditional social science research that they know less about their own lives
than researchers do.

Furthermore, social science employs an objectivity/subjectivity dichotomy
and is aligned with the objective (Stanley and Wise 1993, p.59; Smith 1987,
p.71; DeVault 1999, p.38, Haraway 1988, p.575). Subjectivity is grounded in
human knowledge: the truth as we as individuals see it. Objectivity is thought
to correspond to the world as it ‘really’ is, beyond these human constructions
of reality. Social science traditionally positions itself as objective, as able to
interpret the ‘truth’ of human society as it actually is, rather than how it has
been interpreted by individuals. Stanley and Wise maintain that social
scientists cannot access ‘the world as it really is’, rather, their research always
implicates them in the construction of a version of human society (Stanley and
Wise 1993, p.7). I agree with them: if objectivity transcends human
knowledge, then as humans grounded by their own experiences and
interpretations, how can social scientists, or anyone for that matter, possibly
attain it?

2.3. Toward a Feminist Theory of Knowledge

Stanley and Wise propose that objectivity exists, but as a social construction:
‘the social world is seen and experienced by all of us as a “factual reality”, as
an objective reality which exists outside of us and constrains our behaviour because of this’ (1993, p.140). This is an idea they borrow from ethnomethodology, which they argue is the best alternative to the objectivist social science methods they critique. They recognise the objectivity and validity of every single human world-view and interpretation. While acknowledging that objectivity is a social construction, I part with them when they assert that every human being accesses their own objective reality. By definition, objectivity transcends human knowledge and values. Therefore, what we all construct as individuals is not personal ‘objective realities’ at all, but subjectivity. Instead of changing the definition of a word to suit myself, I am more inclined to use the word that already exists and adequately describes what I am referring to. Subjectivity is all we as humans have, and instead of insisting on objectivity, I propose that subjectivity can be reconceptualised productively for feminist epistemology, as I argue below.

Despite my reservation regarding this semantic use, I suggest that Stanley and Wise’s epistemological insights are constructive for social research. With their challenge to the academic knowledge hierarchy and social science pretensions of singular objectivity as a starting point, they have vital suggestions for alternative ways to conduct social research. Paramount to their approach is that women’s (and men’s) accounts of their world-views and experiences are to be taken seriously, instead of being dismissed as wrong or the products of ‘false consciousness’. In this approach, all respondents, including women, are presumed to speak the ‘truth’ about their lives, but this ‘truth’ is understood as one truth among a multitude of competing truths. Their technique also recognises the ‘truth’ of the researcher and the effects this has on the research. After all, no situation exists whereby researchers do not affect the people they are studying. Importantly, Stanley and Wise recognise the mutuality of this process: the researcher is to some extent
altered by their interactions with the people they are studying as well (1993, pp.153-155). And what of the results they present? The ‘mistakes’ and ‘confusions’ that are inevitable in the research process are often omitted from findings, but these are important sources of knowledge about research and should be incorporated (Stanley and Wise 1993, p.150; Letherby 2003, demonstrates a fascinating application of these ideas, pp.11-15).

Stanley and Wise extend their acknowledgement of individual competing knowledges to observe a very important point about ‘the researched’. Not only are their perspectives distinct and equally valid to those of the researcher, but persons who are ‘researched’ are distinct from one another. Feminist researchers are advised to take care in recognising ‘not only differences between women but also the ways in which differently located women can gain and exercise power and authority, including in relation to men’ (Stanley and Wise 1993, p.8). Letherby takes this stance even further, demonstrating the value in researching men as well as women: ‘It is important to consider the experiences of men [and therefore research them as well as women] to uncover the similarities as well as the differences between us (women and men) and to highlight the differences between men, just as we do the differences between women’ (Annandale and Clark 1996, in Letherby 2003, p.75). When the differences between women (and between men) are taken into account, feminist researchers are better able to present the social body in its complexity, valuing each expression of knowledge in its context. It is for this very reason that my own study incorporates male and female respondents, as I outline below.

One oversight of Stanley and Wise’s feminist epistemology is that it does not account for how some ‘truths’ come to be privileged over others. How has patriarchal knowledge gained ascendancy? While they are in the process of
revalorising personal experiences and personal truths so that women’s experiences and truths can be taken seriously, they tend to downplay the structural dimensions of oppression. While not arguing against structural accounts of oppression in totality, they challenge many points of structuralism and proceed to emphasise the personal, diverse nature of oppression. Because of this, they provide no structural account of patriarchy, and therefore no convincing argument as to why men’s knowledge claims have come to stand for truth at the expense of women’s. Without such an argument, it is difficult to understand why they believe that a specifically feminist epistemology is necessary. Many feminist researchers advocate a standpoint approach, which takes into account the structural dimensions of oppression, and this overcomes problems of relativism in theorising. Some forms of standpoint epistemology are, I will show, invaluable for feminist social research.

The subject of ethics motivates the work of feminist theorists such as Stanley and Wise (1993), Smith (1987), Letherby (2003), Naples (2003), DeVault (1999) and Sprague (2005). All share a concern with how women are represented in social research, especially given its historical foundation as masculinist. Their task is to find a position that successfully integrates academic rigour with respect for the subjects of study. If objectivity is a patriarchal myth that, when adhered to in its most rigid form, necessarily renders the subjects of research as passive and unable to make sense of their own lives, then the answer is clearly to do away with, or to alter, the notion of objectivity. However, feminist social researchers, in acknowledging and embracing their subjectivity, are then open to charges of bias. This charge shows a lack of understanding of the feminist critique of objectivity: since objectivity can never be attained, bias is inevitable in all social research. Nonetheless, from an ethical perspective, the charge of bias must be taken seriously. If feminist
social researchers are concerned with respect for their respondents, then to simply impose their subjective viewpoint onto the data with no consideration for how this will affect them is as patronising and objectifying as so-called ‘objective’ research. To simply embrace subjectivity will not suffice.

The task for feminist researchers is to conduct research that takes all of these factors into account and makes them transparent in their findings. I share this perspective. In the past, the mostly white, heterosexual men who produced social science did not acknowledge the situated nature of the knowledge they produced, they did not acknowledge that their ethnicity, gender and sexuality influenced their interpretations of the world. Hence they often produced racist, sexist, heterocentric knowledge, which was masqueraded as objective, the ‘one, true knowledge’, and this knowledge objectified the people referred to (see Gould, 1997 for a challenge to scientific objectivity and biological determinism as used to justify racist and sexist accounts of singular, innate measurable intelligence in humans). If there is no way for researchers to be truly objective in their work, they must – and do, whether they acknowledge it or not – make the best of their subjective involvement in it. The most effective way to capitalise on one’s subjective involvement in research is to interrogate one’s role in knowledge construction. As Stanley and Wise suggest, what is at stake here is the question of who is doing research, what their context is and what their motivations are (1993, p.231). Because ‘the only way we can avoid overriding other people’s understandings as ‘deficient’ in some way is not to attempt to present these in research. Instead we should be much more concerned with presenting ourselves and our understandings of

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3 Gould’s (1997) critique of racial and gender prejudice in science is unique in that he evaluates science studies from within the domain of science, as an evolutionary biologist, exposing the human error and the subjective assumptions that have informed data collection, interpretation and conclusions drawn.
what is going on, by examining these in their context’ (Stanley and Wise, 1993, p.166, see also Letherby 2003, p.1 and DeVault 1999, p.41).

Feminist epistemologists have generated a variety of solutions to this conundrum. As detailed above, Stanley and Wise argue for an ethnomethodological approach that acknowledges a multitude of competing ‘objective realities’ that the social researcher should consider and respect. I have already suggested that I diverge from their deployment of the term ‘objectivity’. However, I concur with them when they claim that the feminist social researcher must also critically assess her contextual position in the production of knowledge. Gayle Letherby calls this approach ‘conscious subjectivity’ (2003, p.69). She also suggests, correctly in my view, that in rejecting the concept of objectivity we must not also discard the essential academic ideals of meticulousness and accuracy (Letherby 2003, p.71). In acknowledging how our subjectivity shapes our research, it is still vital that our research adheres to these intellectual ideals if it is to be taken seriously. She also maintains that we must be sensitive to the power relationships that structure our research, remaining aware of the fact that the researcher as ‘academic expert’ has more scope to shape the research, but that respondents also have room to negotiate this power when they engage with researchers (Letherby 2003, pp.114-116).

2.3.1. Feminist Standpoint Epistemologies

Some feminist epistemologists have devised an approach often referred to as ‘standpoint epistemology’. One such theorist is Dorothy E. Smith (1987). The motivation for a feminist methodology from women’s standpoint stems from the need to propose an alternative to objectivist, masculinist social science approaches (Smith 1987, p.3). For Smith, sociology must examine the ‘actual experiences’ of people in the ‘everyday world’ (Smith 1987, p.49). To achieve
this, she suggests a methodology she calls ‘institutional ethnography’.
Institutional ethnography entails conducting research stemming from
attention to people’s everyday lives, how we go about our daily business of
living, rather than imposing traditional sociological theories from the
beginning of the research project (Smith 1987, p.49). The task of the sociologist
then is to elucidate the institutions and structures that shape our daily worlds,
(Smith 1987, p.99), ‘explicating for members of the society the social
organisation of their experienced world’ (Smith 1987, p.89).

I am sympathetic to theory that delves into the way people represent their
everyday worlds, and I agree with Smith where she critiques the objectivist
guise that conceals a masculinist frame of knowing. I am, however, cautiously
critical of her reliance on notions of actual experience. People who participate
as respondents in social research may discuss what they perceive to be their
actual experiences of everyday life, and they are often best positioned to
explain what those experiences are, but I suggest the notion of ‘actuality’ runs
dangerously close to reinstating a notion of objectivity, relying on an ideal of
reality existing independently of perception. In addition, personal experience
is perhaps more elastic than Smith acknowledges. Someone’s experience can
adjust depending on the situation from which they view it – and people and
their circumstances are always in process, always subject to alteration. That is,
an account of an ‘actual experience’ as told by respondent to researcher may
differ from their description of the same circumstances on a different day, or
even to a different researcher. This in itself is worthy of contemplation: it
gives us insight into the ways that subjectivity and knowledge are
constructed.

With Gayle Letherby (2003) I also share skepticism over the belief that
research must generate theory from collected data (see also Sprague 2005,
pp.130-131). Smith (1987) maintains that sociological theories have no value for the collection of data, and that researchers would seemingly conduct their research methods with minds completely open to whatever respondents reveal. However, as Letherby points out, feminist research of the kind proposed by Smith always stems from feminist theory (2003, pp.66-67). In fact, researchers always bring with them preconceived ideas, interpretations and theories to whatever they study. It is always to a degree ‘theory-testing’ as well as ‘theory-producing’. Letherby contends that ‘What research should provide is modification, reworkings, extensions and/or critiques of existing theory and the creation of new concepts’, (2003, p.67), which is as true of feminist research and feminist theory as it is of the discipline of sociology.

I question certain feminist standpoint epistemologies on the basis that they have a tendency to essentialise social constructions such as gender and ethnicity in their framework. This is true of Dorothy Smith, and the similar methodological contribution of Nancy Hartsock (1987). Hartsock advocates a feminist standpoint influenced by historical materialism and the labour theory of Marx. She argues that women’s standpoint is a product of the sexual division of labour, and she privileges this standpoint from the belief that the standpoint of oppressed peoples such as women can generate a clearer understanding of social relations (1987, pp.159-160). She also draws on object relations theory, a form of psychoanalysis, to explain that socially, women and men relate differently (1987, p.167). Her approach is less interested in the differences between women than the commonalities among them (1987, p.164). Because of this, her methodology, while sensitive to class issues, would appear to have blind spots on the issues of race, ethnicity and nationality, and other differences between women. Emphasising the similarities between women and their difference from men reinforces gender dualism and implies that all women have something in common at all times.
As I show below in my discussion of poststructuralism, when the problem of essentialism proceeds unchallenged and unresolved, it is unhelpful for feminist research.

I also concur with Letherby when she argues that some standpoint epistemologies lead to competing identity categories with their implication that the more oppressions a marginalised group are subjected to, the more ‘true’ is their knowledge (Letherby 2003, p.46). This problem is evident in Hartsock’s work. But a situation where some people’s knowledge is valued above others is intrinsically unhelpful for anyone concerned with issues of social justice, and is exactly the situation that feminists seek to remedy when they critique traditional social science’s tendency to generalise from the perspectives of men to all humans. However Joey Sprague points out that not all standpoint epistemologies fall prey to the problem of competing oppressions. Those that do, she refers to as ‘subjectivist’ standpoint epistemologies, because they focus on the subjectivity of research participants – the others she calls ‘social’ standpoint epistemologies, because they seek to understand the way knowledge is grounded by social and historical contexts (Sprague 2005, p.52).

Other theorists have reworked the institutional ethnography methodology in a cautiously critical way. For example, Marjorie DeVault (1999) proposes a more convincing adaptation of the theory that retains Smith’s original emphasis on social context and the inter-relations between people’s everyday lives and the structures that shape them (p.49). However, by incorporating poststructuralist critiques of objectivity, identity and structural determinism to the framework, DeVault’s (1999) methodology overcomes many of the problems of its former guise that I have outlined in the previous paragraphs. Unfortunately, without providing a complete elucidation of the
poststructuralist interjection into the debates about objectivity, identity and structure, she does not quite manage to demonstrate what its strength is when combined with a feminist standpoint epistemology.

DeVault also suggests an approach she calls ‘excavation’, which involves developing an awareness of aspects of women’s lives that have previously been concealed or unexplored (DeVault 1999, p.55). Finally, DeVault’s third major contribution to institutional ethnography, and the wider feminist standpoint epistemology of which it is exemplary, is the insistence on the consideration of race and ethnicity as social constructs that shape people’s lives. Thus when adopting the institutional ethnography methodology, DeVault shows that other markers of identity than class and gender come into play and must be contextualised so that a fuller, more representative feminist methodology can be achieved (1999, p.55). Thus DeVault advocates a feminist methodology that addresses and redresses where women have ‘been ignored, censored, and suppressed, and [reveals] both the diversity of actual women’s lives and the ideological mechanisms that have made so many of those lives invisible’ (1999, p.30). In contrast to Smith, DeVault makes no mention of ‘grounded theory’, the questionable assertion that data precedes theory.

Similarly, Donna Haraway (1988) has contributed to the debates about what constitutes a feminist standpoint epistemology, and what its value is for feminism. For Haraway, the feminist researcher is best to understand and make explicit the situated nature of knowledge. The situated knower inhabits the juncture of a number of concepts commonly understood as dichotomies: for example, truth and objectivity as socially constructed versus the concept of concrete reality (Haraway 1988, p.579). Like Stanley and Wise, Haraway is reluctant to abandon the concept of objectivity, understanding it as inherently partial and embodied. This point aside, her notion of ‘situated knowledges’ is
a complex and compelling addition to the feminist standpoint epistemology oeuvre, allowing for the contextual location of the embodied knower and thus the knowledge he/she constructs. Haraway wishes to retain a commitment to a social constructionist concept of truth as multiple, while recognising everyone’s interested agenda in the construction of truth, but also preserves the notion of a reality, ‘one that can be partially shared’ (1988, p.579). A situated knowledge is inevitably a partial perspective, but this is its value: it is only through a connected web of partial, embodied, contextualised perspectives that a fuller, more nuanced vision of ‘reality’ can be obtained (Haraway 1988, p.583). The worth of ‘situated knowledges’ is in their connectivity, bringing together diverse perspectives from numerous subjugated ‘others’ to aim towards political solidarity (Haraway 1988, p.584).

Again, I am hesitant to embrace a position that insists on a concept of objectivity, however it is reconceptualised – feminist reconstructions of the word have thus far not ascribed it any meaning that ‘subjectivity’ does not cover adequately. We are better to insist on ‘conscious subjectivity’ as Letherby does, while simultaneously maintaining the original meaning of ‘objectivity’ and understanding objectivity as an ideal that can never be realised but which can be striven for as a way to guide research toward rigour. Furthermore, Haraway’s article certainly contributes to debates about feminist epistemology, but her theorisation of situated knowledge has limited use for feminist social researchers insofar as she does not extend it into methodology. Nonetheless, a feminist social researcher may wish to use ‘situated knowledges’ as a starting point from which to generate a feminist methodology.

Feminist standpoint epistemologies are to a large degree unavoidable for feminist social research. This is because feminist social research is mostly
concerned with understanding gender and other social inequalities so that they may be combated. In this way, feminist social research inevitably takes ‘women’ and ‘men’ as social categories to be investigated – they work from the standpoint that gender is a salient area of imbalance and injustice and seek to overturn this. Sprague recognises this, and demonstrates that standpoint epistemologies which understand knowledge as produced within specific social and historical contexts are indispensable for feminist social research. A feminist standpoint methodology, she argues, appreciates and makes explicit the way that feminist social researchers are contextually located between social privilege based on their academic status, but also as potentially subject to discriminations stemming from axes of difference such as gender, ethnicity, age, sexuality, and ability (Sprague 2005, pp.71-72).

Moreover, she recommends four key strategies for social researchers who wish to work from a feminist standpoint methodology: ‘work from the standpoint of the disadvantaged, ground interpretations in interests and experience, maintain a strategically diverse discourse, and create knowledge that empowers the disadvantaged’ (Sprague 2005, p.75).

Working from the standpoint of the disadvantaged involves identifying groups that are marginalised within the locale of the research situation, taking their perspectives into account, and developing analyses that reflect and contextualise their standpoint (Sprague 2005, pp.75-77). Of course, the standpoint of the disadvantaged is not the only standpoint that exists in the research context. Positions of advantage, including that of the researcher, also require scrutiny – they must be contextualised by their influencing interests and experiences (Sprague 2005, pp.77-78). By ‘maintaining a strategically diverse discourse’, Sprague means opening the research up to theories and analyses generated from ‘contrasting social locations’, or varying standpoints (2005, pp.78-79). Finally, constructing knowledge that empowers the
marginalised involves interrogating the differing positions of social power between the researcher and researched, remaining sensitive to the way this power is implicated when researchers seek to represent research subjects, and generating analyses that challenge the dominant ideologies that suppress them (Sprague 2005, pp.79-80).

2.3.2. *Poststructuralist Challenges to Feminist Methodologies*

Poststructuralism is characterised as a set of discourses which decentre and deconstruct a number of theoretical assumptions that have previously been taken for granted, such as objectivity (Letherby 2003, p.51). In this way, it would seem to be compatible with the challenge to objectivity advanced in feminist epistemologies, and therefore has some common ground with standpoint theory. However, feminism is predicated upon notions of the coherence of identity and subjectivity. Poststructuralism undermines these very notions and is, from this perspective, a significant challenge to traditional feminist epistemologies (Naples 2003, p.23; Letherby 2003, pp.51-52). Judith Butler, for example, contends that identity categories function as essentialist ‘regulatory regimes’ whether they are deployed for the subjugation of oppressed groups or for their liberation. Because of their inextricable position in the nexus of power relations, identity categories are always at risk of being appropriated and redeployed for conservative ends (Butler 1991, pp.13-14). If identity categories are socially constructed in the service of power, but have no basis in objective reality, then what of

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4 Poststructuralism has itself come under scrutiny from indigenous scholars. For a specifically New Zealand discussion of indigenous epistemologies and methodologies, see Linda Tuhiwai Smith (1998). Smith warns against uncritically adopting a postmodern epistemology: ‘There can be no “postmodern” for us until we have settled some business of the modern. This does not mean that we do not understand or employ multiple discourses, or act in incredibly contradictory ways or exercise power ourselves in multiple ways. It means that there is unfinished business, that we are still being colonised (and know it), and that we are still searching for justice’ (1998, p.34).
feminism’s insistence on womanhood as a fact and the foundation for female oppression, as well as a shared political category feminists use as a location from which to critique that oppression? For poststructuralists, the notion of identity is a political fiction and a function of claims to power. At best, identity can be conceptualised as multiple, but cannot even claim coherency on an individual level, as subjectivities themselves come to be seen as fragmented, fractured (Letherby 2003, p.52), and in some versions of poststructuralism, ‘schizophrenic’.

Power relations are a concern of poststructuralists such as Michel Foucault (1977, 1978). Power infuses every relation between every ‘subject’ (I use quotation marks to show consistency with the poststructuralist challenge to subjectivity). It underpins all claims to identity, all claims to truth, and all claims to singular objectivity (Letherby 2003, p.51, 52; Naples 2003, p.23, 24). What then, feminist theorists ask, are to be the grounds for a feminist theory and politics? If ‘woman’ as an identity category is a socially constructed fiction, one that provides impetus for claims to truth and power, then feminists themselves are implicated in the very same truth and power games they seek to challenge and overturn. It has thus been suggested that poststructuralism’s relativist tendencies lead to a political standstill (Letherby 2003, p.52; Naples 2003, p.23). For example, if feminists cannot lay claim to an identity category, ‘women’, from which to account for shared female oppression and from which to mobilise a politics of female solidarity, then how is the oppression of women to be countered? Poststructuralism’s challenge strikes at the very heart of feminism’s potency, and it is for this reason that a number of feminists are sceptical of its value. They question why it is that at the moment when women’s voices are beginning to be revalorised by the feminist movement, a theory emerges which undercuts the very notion of shared female identity. It would appear to be incompatible
with feminist standpoint epistemologies, which argue for exploration and analysis of women’s experiences in their historical and social contexts, maintaining the notion of a female identity as a starting point for knowledge.

And yet, some feminists have taken the poststructuralist challenge to feminism into account with enthusiasm and have generated compelling gender analyses despite the seemingly contradictory epistemologies this would entail. Nancy A. Naples (2003) is one such theorist, and she usefully makes her numerous epistemological bases explicit. Her research draws on versions of feminist standpoint theory, materialist feminism and ‘postmodern’ theories of discourse and power, neatly demonstrating that feminist social research can successfully integrate a number of different theoretical frameworks. While it would initially seem that the standpoint epistemologies of Nancy Hartsock and Dorothy Smith would diverge considerably from Foucauldian discourse and power analytics, Naples views their approaches as overlapping and each able to buttress the other’s weaknesses and oversights (Naples 2003, p.6). Naples’ adoption of varying theoretical frameworks is a pragmatic solution to the problems of objectivity, ethics, essentialism and power in feminist social research, and as she asserts, feminist methods necessitate ‘a commitment to strong reflective strategies, especially ones that include, wherever possible, dialogue and respectful engagement with the subjects of research’ (2003, p.26) in order to minimise their exploitation (2003, p.13). In any case, some element of essentialism is unavoidable in all social research, including feminist research, and I concur with Judith Butler who resolves the problem of essentialism by advocating ‘strategic provisionality’: ‘There is a political necessity to use some sign now … [and] identity can become a site of contest and revision, indeed, take on a future set of significations that those of us who use it now may not be able to foresee’ (1991, p.19). The words ‘women’ and ‘men’ used in this study are
therefore to be understood as provisional categories deployed in the service of
critiquing gender inequality in the music industry. They are acknowledged as
socially constructed categories implicated in relations of power and
domination, and are open to challenge and modification, as all language is,
but especially for political ends. My own feminist deployment of the category
‘woman’, for example, would seek to not exclude anyone for whom that
identification is meaningful, and I embrace a diverse definition that does not
hinge on the fiction that all women share a delineated, intrinsically female
quality across all cultures and societies in history. Such an intrinsically female
quality does not, of course, exist. My own research, like that of Nancy A.
Naples, combines aspects of several distinct epistemologies: feminist
standpoint theory, poststructuralism.

2.4. Methodologies in Popular Music Studies

In this section, I examine the methodologies used in popular music research,
particularly qualitative research that is concerned with the work of musicians,
sound engineers and music industry personnel. Early work in this area, such
as that of Kealy (1974) and Stith Bennett (1980) can be critiqued on the same
grounds that feminist epistemologists have challenged traditional social
research: they present a masculine perspective which is masqueraded as
objective and universal. However, more recent research has responded to
feminist contributions to knowledge, exhibiting methods that demonstrate the
influence of feminist approaches. This area of research is critiqued for neglect
of issues of epistemology and methodology. Researchers often give a name to
their methodology and outline their methods, without adequately theorising
them or even acknowledging methodological debates. I suggest that it is
crucial for popular music studies scholars to theorise their methods

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comprehensively, contributing to a stronger tradition of social research that compares favourably with other disciplines.

Kealy’s (1974) work is reminiscent of traditional social research, and is certainly of the time frame in which major feminist challenges to social research were taking place. Kealy, influenced by Howard Becker’s theorisation of art worlds, undertook participant observation of recording studios in the USA to gauge the social organisation and behaviour of personnel involved in the production of popular music. He brought the work of recording engineers and sound mixers to the fore, supplementing his fieldwork with in-depth interviews and insights from relevant trade magazines. While demonstrating the uneven stratification of popular music production, whereby musicians and producers are placed in a position of privilege for work that is essentially a combined creative effort between producers, musicians and engineers, Kealy’s work suffers from a lack of attention to issues of gender and ethnicity, and fails to take stock of the partial perspective of the masculine viewpoint in which it is based⁵. Far from being a representation of the objective reality of popular music production, Kealy’s study treats only one form of subjugation as salient, despite the absence of women and the prominence of white respondents. Had Kealy adopted a non-sexist, anti-racist approach to the gathering of knowledge, he might have given race and gender their due attention and considered the social factors that have enabled popular music production to be practiced predominantly by white men. He might also have considered what it means for women and

⁵ See H. Stith Bennett’s (1980) study of the processes of ‘rock musician’ identity formation for another example of where a social researcher fails to take gender into account while at the same time positing a scene comprised of male norms and male behaviours. Steve Jones’ (1992) study of technology and power in the production of rock music reproduces gender as a blind spot too.
non-white people in Western countries that the means of mass musical production are largely denied to them.

A number of other researchers have also been influenced by Howard Becker’s concept of ‘art worlds’, notably Ruth Finnegan (1989), Mavis Bayton (1989) and Sara Cohen (1991). Finnegan’s ethnography is sensitive to the everyday practices of amateur musicians in their local context and converges with my methodology when she interrogates the distinction between ‘amateur’ and ‘professional’ musician, asserting there is no clear boundary between them. Finnegan rejects a hierarchy of musical worth where only professional and famed musicians or canonical works are deemed worthy of study, drawing attention to everyday musical practices and how they contribute to the construction of culture and society. Like Kealy, however, she does not fully insert everyday music-making into its social context because she does not pay attention to gender or race in the social construction of the ‘amateur musician’. Cohen’s work brings gender into the picture: through an ethnographic study which combines participant observation and interviews, she illuminates the construction of masculinity in the Liverpool rock scene. Bayton (1989, 1998) produces what I consider to be a feminist standpoint sociology of rock bands, by honing in on women’s everyday experiences of rock music-making in amateur and professional contexts. Attempting to be sensitive to ethnicity, she endeavoured to include non-white women in her sample of respondents. She aimed to challenge the masculinist discourse of rock in academic work, and was successful in this regard. But as black feminist scholars reminds us, including non-white participants in a study is not sufficient for theorising ethnicity, and runs the risk of simply co-opting their views without deconstructing the general whiteness of rock cultures.
Mary Ann Clawson’s work (1993, 1999a and 1999b) is almost certainly indebted to feminist standpoint theory, although she does not attribute her epistemological leanings to the theory (nor does Sarah Pritchett in her study of female rock musicians in Auckland (2002)). Through questionnaires and interviews with male and female musicians in rock bands, she is able to theorise both masculinity and femininity in rock culture, providing a nuanced and comprehensive perspective on gender in the music industry. She also acknowledges rock’s whiteness, but this might be fleshed out by a detailed contextual analysis as suggested by more recent adaptations of standpoint theory. Other popular music studies scholars such as Helen Reddington (2007) allude briefly to the vast body of feminist social research, demonstrating the way it can mitigate the processes of ‘forgetting’ women’s contributions to popular music culture (as she shows in her excavation of 1970s women punk musicians in the UK, achieved through content analyses of music press and fanzines as well as interviews with the women themselves and other music industry insiders of the time). Marion Leonard (2007) fuses interviews, mostly with women musicians from ‘female-centred bands’ in the UK and the US, with content analyses of music magazines and fanzines too. Her emphasis on the ‘everyday experiences’ of women rock performers reveals a methodological debt to Dorothy E. Smith (1987), but this link is not made explicit, and readers are left to speculate about the epistemological basis for her use of such concepts. Again, however, attention to methodological issues would enhance these analyses.

Feminist standpoint theory has certainly been influential in studies of women musicians. For example, both McCartney (1994) and Sandstrom (2000) are indebted to Donna Haraway’s notion of situated knowledges, as outlined in section 2.3.1. In her study of Canadian women composers of electroacoustic music, McCartney is concerned with contextualising women’s experiences.
She sought to unpack the imagery, metaphors and myths that the composers use to describe their creative endeavours, arguing for their resistance to ‘malestream’ concepts of electroacoustic composition. McCartney also explored gendered imagery in musician trade magazines. One problem with her approach is that, by uncritically adopting standpoint theory, she cannot respond to the challenges poststructuralism poses to essentialism, and because of this seems to represent women as a coherent category, sharing intrinsic qualities. A related issue is that male electroacoustic composers’ perspectives are absent from the study, and hence we cannot ascertain whether there is any common ground or differences between the imagery they use to discuss their work. This would lead to a fuller, more convincing argument about gendered metaphors.

A similar problem arises in Sandstrom’s ethnography of 1970s women sound engineers who worked at the Michigan Womyn’s Music Festival (2000). Although she provides the caveat that she does not wish to essentialise the experiences of women sound engineers, (2000, p.291), an effort to deconstruct social constructs such as ‘identity’ and ‘experience’, informed by feminist methodological debates, may have lead her research in a different, more thorough direction, for example incorporating male sound engineers in the study. In this sense, Andolsun’s (2004) method is relatively rigorous. She tests tokenism theory in the rock band milieu by interviewing both men and women about their gendered experiences as musicians. But she does not relate her method to methodological and epistemological debates. There is no discussion of what feminist epistemology can offer to the study of popular musicians, nor questioning of truth, experience, identity, reality and the objectivity/subjectivity dichotomy.
The clearest acknowledgement of these debates are presented in studies by Jennifer Brown (1995), Thomas G. Porcello (1996) and Keith Negus (1999). Porcello’s ethnography of a recording studio uses a framework he calls ‘social phenomenology’, which is concerned with experience, not as an unproblematic objective fact but as it is represented through discourse as defined by Foucault (1972). He acknowledges his role as a researcher in constructing information, rather than seeing himself as a neutral conduit for the channelling of the recording studio experience as it ‘really’ is (1996, p.5). Porcello’s effort to foreground epistemological debates in methodology is refreshing. Given his background as an ethnomusicologist, it is fairly unremarkable that his emphasis on ethnography as representational practice is influenced by anthropological works published in 1986 (Porcello 1996, p.23). However, given that the feminist critique of objectivity in social research stems from the 1970s, this raises important questions regarding processes of ‘forgetting’ important academic contributions made by feminists. Had Porcello drawn insights from feminist methodologies, he may have been more active in detailing the construction of gender through discourse in the recording studio – a process he merely alludes to. Further to this, feminist theory may have enabled him to self-reflexively account for his own investment in the production of gendered discourses of sound – discourses which I will deconstruct in sections 3.4.2. and 4.3.

Negus’ work includes a brief discussion of the social construction of truth, experience and reality as it relates directly to his qualitative methodology. This is unusual, for his study of corporate strategy in recording companies as espoused by music industry personnel is not specifically feminist, although he does allude to gender stratification in the music industry in his earlier work (1992). This discussion could be strengthened by attention to the origins of these debates (he cites neither feminist epistemologists nor poststructuralist
theorists). Furthermore, in adopting a critical version of standpoint theory, it might enable a much more comprehensive theorisation of gender stratification in the music industry. Jennifer Brown, in contrast, situates her research with explicit reference to feminist debates about objectivism and power in social critique. Her epistemological grounding is strong, but her method tends to reproduce women as the ‘other’ in popular music by simply incorporating women’s experiences into popular music studies, rather than deconstructing femininity and masculinity.

From this brief overview of popular music studies qualitative research, I conclude that three approaches to methodology predominate. In one approach, traditional social research continues ‘as usual’, as though feminist debates about objectivity and masculinism in social research had never taken place. This approach, exemplified by the work of Kealy (1974), Bennett (1980) and Jones (1992) takes male perspectives of the music industry as its starting point, but does not make the male-centred nature of its projects explicit or interrogate it. It is assumed to be a neutral basis for the production of knowledge. Feminist scholars such as Stanley and Wise (1993) pose significant challenges to this approach. Other approaches are indebted to feminist standpoint theory, and take into account the impact of gender on popular music-making. Some such scholars acknowledge that feminist standpoint theories influence their methods but seldom elucidate the epistemological concerns this entails. Others do not overtly state their methodological leanings at all. I argue that, in the absence of thorough explication of feminist epistemologies and the methodologies that they have inspired, such studies are limited. In some cases, such as McCartney (1994) and Sandstrom (2000) they produce knowledge that is too easily countered, and on the whole cannot help to construct strong methodologies for the study of people involved in the production of popular music.
2.5. **Methodology: Gender Dynamics of Sound Engineering in New Zealand**

Shulamit Reinharz (1992) argues against feminist methodology as a singularity, preferring to see it as ‘the sum of feminist methods’, and presenting a convincing case that feminism itself is not a method but a way of knowing that can influence the methods chosen and the way data are interpreted (Reinharz 1992, pp.240-241). Reinharz (as well as Naples 2003, p.1 and Letherby 2003, p.81) acknowledges the plethora of methodologies available to feminists, characterising none as objectively more feminist than any other, instead recognising the diversity of women, feminisms and feminist methods. The reason why feminist methods are diverse is firstly because feminist epistemologies are diverse, and secondly because feminism is inherently trans-disciplinary, crossing many disciplines and having access to numerous different research methods (Reinharz 1992, p.250). These insights inform my decision to combine different feminist methodologies and different methods.

My methodology thus consists of feminist social standpoint theory, as outlined by Joey Sprague (2005), combined with the insights of poststructuralist theory manifest in Foucauldian discourse analysis (Foucault 1972), as well as a sensitivity to the insights of ‘decolonising methodology’ proposed by Linda Tuhiwai Smith (1998). My approach is strongly qualitative but it also includes elements of the quantitative. Like other feminists such as Reinharz, I affirm the value of multiple methods for feminist analysis and my varying methodologies are in keeping with Joey Sprague’s reminder that feminist standpoint methodologies are most successful when they deploy
strategically diverse discourses (2005, pp.78-79). To begin with, I outline discourse analysis and its value for my project.

2.5.1. Discourse Analysis

Typically, scholars draw a distinction between two usages of the word ‘discourse’. The first is its linguistic meaning, that is, all of written and spoken language as well as people’s linguistic interactions (Sunderland 2004, p.6). The second usage of discourse draws on poststructuralist theory, especially that of Michel Foucault (1972, 1978), understood as ‘broad constitutive systems of meaning’, how truth and practice are constructed by particular groups and institutions (Sunderland 2004, p.6). In this thesis, discourse is employed with the latter usage in mind. When discursive formations are analysed, scholars reveal their limits, exclusions and silences, why they exist in the form they do, and their relation to other discursive formations: as Foucault puts it, ‘We do not seek below what is manifest the half silent murmur of another discourse; we must show why it could not be other than it was, in what respect it is exclusive of any other, how it assumes in the midst of others and in relation to them, a place that no other could occupy’ (1972, p.31). Discourse analysis enables the feminist scholar to investigate the production of gender in particular structures and institutions: how is gender talked about? What is thought to constitute concepts such as masculinity and femininity? What are the boundaries of these concepts, what other concepts are they aligned with and which concepts are denied a relationship to them? If one discourse gains prominence, what other discourses are also in effect? What strategies do the discourses represent, and what do they tell us about knowledge and power?

See also Pearman (2008) for further notes on discourse analysis as a research method.
Like Foucault, I am interested in the multiplicity of discourses, conceived of as:

tactical elements or blocks operating in the field of force relations; there can exist different and even contradictory discourses within the same strategy; they can ... circulate without changing their form from one strategy to another, opposing strategy. We must not expect the discourses ... to tell us, above all, what strategy they derive from, or what moral divisions they accompany or what ideology – dominant or dominated – they represent; rather we must question them on the two levels of their tactical productivity (what reciprocal effects of power and knowledge they ensure) and their strategical integration (what conjunction and what force relationship make their utilisation necessary in a given episode of the various confrontations that occur (1978, pp.101-102).

Through discourse analysis, I seek to expose the discourses of gender manifest in the production of popular music through the words of sound engineers, as well as in New Zealand music industry texts. I bring a sensitivity to the use of similar discourses for seemingly contradictory purposes, for example, the reliance on similar essentialist notions of gender to justify and at varying points challenge the marginalisation of women within the occupation of sound engineering (this is what Foucault (1978, p.101) refers to as ‘reverse discourse’). I also reveal competing, alternative discourses that say something different about the operation of gender in sound engineering, and I consider the strategies which these discourses might represent. Thirdly, I elucidate the moments of ‘rupture’ and ‘discontinuity’ (Foucault 1972, p.4) that come into play in the discursive formation within sound engineering; for example, where two seemingly contradictory discourses are employed by the same people enacted within the same strategy. Thus discourse analysis, rather than presenting a one-dimensional account of gender oppression, is open to and discloses the complexity of the nexus of gender, power and knowledge, and it is for this reason that I consider it indispensable for my analysis.
2.5.2. Methods

My methods were threefold – I undertook interviews with sound engineers, I performed a content analysis of *New Zealand Musician (NZM)* magazine, and I obtained census figures from Statistics New Zealand detailing the gendered make-up of jobs within some performing arts industries. I chose multiple methods to enable triangulation of data: the strengths of each method help make-up for shortcomings of the others. The methods are both qualitative and quantitative, but I have placed emphasis on qualitative methods as these are best equipped to provide content for discourse analysis. It is the gendered discourses in the New Zealand music industry that I seek to understand and convey. For this reason, I did not ask participants for income details for their work. Such information would have been interesting to analyse, and could have given insight into the extent and nature of the formal and informal economies at play in sound engineering work, and gendered income disparities. Nonetheless, directly asking for such information in the interview setting would have been a source of discomfort for the interviewer, and a potential source of discomfort for respondents. Gathering income details would be more appropriate in a quantitative survey study, and my emphasis lay elsewhere.

The interviews with sound engineers and the content of *NZM* magazine are ripe for analysis, and they illuminate the construction of knowledge and the dynamics of power within the industry. However, discourse analysis alone does not provide an overall impression of gender stratification in the music industry. Drawing on feminist standpoint theories that seek to explain women’s and men’s differential positions in work has therefore influenced my decision to seek quantitative data. Census figures provide concrete evidence of the preponderance of men in certain music industry jobs and of women in others. Furthermore, we can see how gendered discrepancies are
reinforced and re-circulated in the media simply by counting how many times women and men appear as musicians in the pages of NZM. NZM’s annual educational directory gives direct evidence of the gendered make-up of teaching in audio engineering schools as well. Thus content analysis is important for the study.

Of course, methods in themselves are neither feminist nor non-feminist, as Reinharz reminds us. Nonetheless, a number of feminist scholars have advocated multiple methods for feminist social research (see above), arguing that they best afford rigour through a combination of sensitivity to social structures as well as the personal dimensions of disadvantage and resistance that feminists seek to explain. The disciplinary nature of research is revealed more in the methodology that drives the research: in this case, a revised version of standpoint theory underpins my choice of multiple methods. In keeping with feminist critiques of traditional social research, I recognise and acknowledge my own stake in the research agenda. As argued above, I do not regard myself as an objective and detached observer documenting the world of sound engineering as it ‘really’ is. No such uncomplicated reality exists, for we each have our own assessment of reality influenced by our particular social and historical contexts. As author and researcher, I am fundamentally implicated in the construction of this text and the mediation of the views expressed by respondents. It is important to me as a feminist to value the perspectives of all respondents and to avoid objectifying them, patronising them or representing them as blinded by false consciousness. As Stanley and Wise (1993) demonstrate, such an approach would have too much in common with social research that devalued, denigrated, marginalised, misrepresented and/or ignored women’s perspectives, and therefore would not be feminist at all.
Nonetheless, to pretend to be able to tap directly into the exact meaning of respondents’ words, and present them as ‘fact’, as devoid of agenda, elides the exercise of power in the interview exchange. Like Letherby (2003), I believe the best approach is to express ‘conscious subjectivity’, to acknowledge my contextual location in the research and my active construction of the work. I am not a disinterested observer: I am a white New Zealander of European descent. I am also a rock musician and a feminist sociomusicologist, and these identity categories intertwine in my research. Feminist theory has informed my musical practice; my musical experiences in turn are a source of academic inspiration. My ethnicity is revealed through the genre of music I have chosen to perform. After several years of performing in bands around Dunedin, where I study, I was already aware of the unusual position of women as rock performers in the town. Gradually it dawned on me that I had never seen a woman mixing live sound for a band. My curiosity was ignited! Questions ensued: why were all the ‘soundies’ I knew men? Was there something about that big console with a thousand daunting knobs that spoke to me of everything I didn’t know? Was it that becoming a rock musician in itself was enough of a step for women into a male-dominated milieu that taking the production of music even further seemed even more distant from a woman’s comfort zone? Or was it something that women just don’t want to do? Naturally sceptical of any simple explanation, my academic background in music studies and feminist theory propelled me to pursue the line of inquiry.

It was not that I felt especially disadvantaged as a musician in having mostly men mix the sound at gigs. Like any musician in Dunedin, I faced a choice of

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7 Subsequently, I have discovered through my research that this is not true: one of the bands I performed with was indeed mixed by a woman. I attribute this ‘forgetting’ not to my devaluing of her work but to my own inexperience with the world of rock gigging at the time it happened. I suspect I didn’t even know what a sound engineer was back then!
several engineers of varying prices and varying capabilities. I was certainly inquisitive though: what would it be like, I wondered, to work with a woman? What would her working methods be? What would her experiences be in such a job? How would she learn the ropes? Would fellow engineers accept and encourage her into it? Would there be barriers? If yes, would they be gendered barriers, and would they be external to her or internalised by her? What personal qualities would enable her enterprise? What would male engineers make of her? How do they see themselves? What makes them want to do a job that has so few women working in it? And so the ideas behind my interviews took shape.

2.5.3. Interviewing

Like Mary Ann Clawson (1999a), I am convinced that ‘adding women in’ to existing popular music studies research tells us little about how the masculinisation of an occupation occurs and how it is reinforced by people working within it. Thus my study is concerned with male and female sound engineers. I interviewed a roughly equal number of men and women sound engineers: 40 face-to-face in-depth semi-structured interviews were conducted. They ranged in length from half an hour to two hours. I obtained 3 written questionnaire responses and 1 informal e-mail response from respondents who were not available for an in-person interview. Participants ranged in age from 18 to 59. Thirty-six were European New Zealanders, two were expatriate Germans, one was an expatriate from France, four identified as Maori or part-Maori and one as a Chinese Dutch New Zealander. Nineteen respondents were men, and twenty-five were women. The respondents were largely found in Auckland, Hamilton, Wellington, Christchurch and Dunedin though one participant resided in Thames and another in Nelson. Respondents were drawn from all levels of the occupation: from learners,
beginners and amateurs to professionals in recording studios, sound companies and educational facilities, as well as freelancers who work with bands of international repute. A disaggregation of data concerning the working lives of the sound engineers in the sample is offered early in Chapter Three.

Interviews took place in a variety of locations that were most convenient or comfortable to the respondent. Most were conducted in respondents’ homes, others in public places such as cafes and workplaces. One interview even took place in the respondents’ car! Most of the interviews were recorded on an ipod, except for a quarter which were recorded on a cassette recorder. I transcribed all the interviews myself, a process I insist on for myself as it helps consolidate my understanding of the interview and refreshes my memory of the vocal inflections that signify as much as words do.

Rather than generating a list of questions to be asked in a particular order, I had a range of topics I wished to cover. Starting with a general question (how/why did you become a sound engineer?) respondents were able to discuss aspects of their working lives that they deemed important. I cultivated sensitivity to topics most of interest to the respondents, in other words, those which they brought up first and were expanded upon in breadth and detail. It was important to me, as a feminist researcher, to allow respondents the freedom to explore issues they felt were meaningful to them. I wanted to give them a sense that their knowledge was, and is, valued, as opposed to just being ‘data’.

Sometimes the topics respondents pursued coincided with those I wished to cover. Sometimes they brought issues to the interview that I had not

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9 The Information Sheet in Appendix 1 gives details of these discussion topics.
anticipated. My range of topics was then modified accordingly, to encompass new insights. I asked a mixture of closed- and open-ended questions. Questions would come to mind as the interview progressed, and the spontaneity of the situation meant that I did not always phrase questions in an open-ended way as I might have done had all questions been pre-planned. Closed-ended questions were not always followed by yes/no answers though, and this demonstrates the ability of the respondent to influence the direction of the interview. Some respondents gave elaborate answers anyway. Others I prompted to explain their answers in more depth. In any case, such method ‘mistakes’ suited the conversational, informal style I wished to cultivate in the interviews.

To interviewees, I presented myself as both a musician and a PhD candidate. I did not attempt to downplay my identity as a musician even though it may have affected the information that respondents gave me. Because many of the respondents were contacted through mutual musical social networks (snowballing), there seemed to be little reason to conceal this aspect of myself. To do so may have provoked suspicion on their part and decreased rapport. I also enlisted a significant number of respondents by contacting sound engineering educational facilities, sound reinforcement companies and recording studios. Contact was initiated by e-mail, but this elicited only a few responses. In the cases of non-responses, I made contact with some companies on the telephone. This was a very effective way of ensuring a response and arranging an interview. Respondents were much more likely to consent to an interview when contacted over the phone than via e-mail. (A small few of these interviews were unable to take place, if respondents were busy with their work and had to reschedule our meeting. Sometimes a suitable time simply could not be arranged, and in this case, I asked the respondents if they would be able to answer some questions via e-mail, and they were kind
enough to oblige). Again, I chose to present myself as a musician and a PhD candidate, even when respondents did not know me already. Ethics influenced this decision. Honesty and integrity are important to me as a feminist researcher. Had I misled respondents through omission, I believe I would have been participating in an unfair exchange, and abusing my position as a researcher. To conceal this aspect of myself would have required the kind of ‘detached’ manner associated with unethical objectifying research critiqued by feminist epistemologists.

I am both an ‘insider’ and an ‘outsider’ to the working world of the sound engineers I studied. I am not a sound engineer, so I cannot claim to have had direct practical experience of the occupation, and this was a point of difference between the respondents and myself. I do not believe this disadvantaged the study in any significant capacity: while it meant that the advanced technical details of their work was sometimes (but not always) foreign to me, a working knowledge of a mixing console is not required for a study concerned more with relationships, experiences and the circulation of discourses within sound engineering. In addition, being a sound engineer may have disadvantaged me. A number of respondents divulged that other sound engineers can be protective of their specialist knowledge and display a competitive attitude. I believe that such engineers would have been suspicious of another sound engineer, believing him/her to be ferreting for trade ‘secrets’. A ‘precious’ sound engineer who believed the interviewer to also be a sound engineer might be less likely to talk at length in an interview. As a non-sound engineering ‘outsider’ then, I was perhaps viewed as more trustworthy than an ‘insider’, the ‘competition’.

I was an ‘insider’ in the sense that I am a participant in a local rock music scene. Because of this I was unobtrusively able to insert myself into the world
of gigs. My existing social network of musicians helped connect me with respondents and engaged me in an ever-increasing musical social network that led me to other respondents. Thus being a musician was advantageous. It may have imposed a barrier between some respondents and myself, who may conceivably have been more circumspect with me if they viewed me as representative of a group of people they refer to as ‘clients’. But the majority of respondents were helpful and obliging, and I felt a rapport with most of them that appeared to be mutual.

Researching as an academic also placed me in various locations on the insider/outsider spectrum. With students and teachers at sound engineering schools, I shared an academic background; with others, I did not. My academic background opened up numerous ethical considerations: as participants in the project, respondents were provided with the ‘Information Sheet’ detailing the nature of the study, subject areas they would be asked about, and their right to decline to answer certain questions and/or withdraw from the project at any stage. I have included the ‘Information Sheet’ in Appendix 1. If a respondent wished to participate, he or she was then asked to sign the ‘Consent Form’ indicating they had been duly informed. Respondents were alerted to the feminist nature of the study and its grounding in gender concerns. This was simultaneously beneficial and possibly also a hindrance, though a necessary one. The majority of respondents appeared unconcerned by the feminist approach in the project and participated generously in interviews. Most of the women seemed happy to talk of their experiences, and with some it was clear that feminism was common ground between us. A number of male respondents also seemed sympathetic to the topic and egregiously shared stories of differential treatment they had witnessed, acknowledging sexism in the occupation, taking pains to distance themselves from such behaviour, and displaying
liberal attitudes. Some with more conservative views were surprisingly candid about their attitudes about gender and sound, and as I was interested in their views, I chose not to openly challenge any politically incorrect perspectives they espoused unless they asked me for my opinion. Others seemed aware of the unacceptability of intemperate sexism, modifying their language accordingly. I could not establish rapport with a few of them.

Whether this was because they perceived me to be a musician, a feminist, or some other outsider, or whether they were shy or not particularly expansive personalities, is a matter of speculation. I can, however, mention the declaration of one particularly candid male respondent who, at the close of our interview, confessed that he had been rather nervous that I was to ask him questions about his views on feminism!

Consistent with some feminist methodologies, I chose to self-disclose in interviews. This I did in the interests of enabling a fair exchange. However I only referred to my experiences and opinions if respondents asked me about them. I was aware of the danger of intruding upon respondents’ opportunity to talk about their work and creative endeavours – some seemed especially excited to find someone interested in their work – and so I only self-disclosed when invited to. After all, the process had been represented to them as an interview rather than a conversation, and I did not wish to defy any expectations. Too much self-disclosure could run the risk of respondents’ perceiving me as more interested in myself than in them, in talking rather than listening. Interestingly, the questions I was asked most often were whether I was a musician, whether I was a feminist, what feminism meant to me, and how I came to be interested in the work of sound engineers.

Respondents were mostly unknown to me before the research began. A small few were friends or acquaintances. Interviewing friends and acquaintances
enhanced rapport rather than detracting from it: these respondents were especially generous of their time and knowledge. I can only hope that by asking them to repeat stories they had already told me, and to answer questions they felt were obvious, that they were not overly frustrated with me!

I have determinedly tried to preserve the anonymity of all respondents. The intimate nature of New Zealand’s music scenes means that it would be unethical to include much personal identifying information in this work. Thus, where respondents’ quotes are incorporated, I describe them only by pseudonyms (which gender them) and their job or musical enterprise. Ages, locations, ethnic identity, and workplace names are omitted from the text. To include such information would render most respondents vulnerable to identification. In some cases, pseudonym, vocation and the date of interview has been omitted, where it was likely to compromise the respondent’s anonymity.

Where possible I have provided respondents with a transcript of the interview. This was not always possible when respondents moved on with their lives and I lost contact with them. The majority were reachable, and some seized upon the opportunity to edit, delete and rewrite portions of the interview as they saw fit. Some gave me updates on their lives and work, for which I am very grateful. Borland (1991) advocates allowing respondents to participate in the interpretation of their words (p.73) to curtail the problem of misrepresenting them (pp.69-70). However, such an endeavour is unrealistic for a qualitative study of this magnitude, and is perhaps more suitable for case studies and personal histories. I take the issue of misrepresentation seriously, nonetheless, and seek to distinguish in this thesis between respondents’ views and my interpretations of their views. As a mediator of
their knowledge it is inevitable that I represent respondents, and the most that I can hope to achieve is to acknowledge my role in constructing interpretations out of the knowledge they have shared with me.

Finally, as a researcher influenced by feminist standpoint theories, I take seriously the task of positioning sound engineering in its social and historical context. Because of this, it is fundamental to any social research to attend to matters of ethnicity. Unfortunately the majority of respondents were white New Zealanders (as well as two white expatriate Germans, and one white English migrant). I managed to secure interviews with four people of Maori descent and one Dutch Chinese New Zealander. I would like to have interviewed more Maori and Pacific Islanders, and perhaps their underrepresentation in my study is indicative of my own white, rock music background. Had I immersed myself more fully in reggae and hip-hop scenes, perhaps this discrepancy could have been rectified. I did contact a hip-hop record label by e-mail and then by telephone but received no response. Another potential interviewee of Maori descent also declined to respond. Nonetheless, my study still reveals insights into ethnicity and sound engineering. The ethnic discrepancy of respondents reflects the make-up of sound engineering as a job. There is a paucity of non-white people in the production of popular music in this country and future research might consider why it is that white people have come to predominate in sound engineering.

2.5.4. Content Analysis

*New Zealand Musician* magazine is an independently owned bi-monthly publication that offers interviews with popular New Zealand musicians, reviews of the latest electronic musical equipment and instruments, an annual music education directory, an annual recording studio and record label
directory, a gig guide for the main centres around the country, and gig and CD reviews. It is a free publication with a circulation of 10,000 and can be found online or in cafes and music stores nationwide. It also features popular music-related advertising, such as for instruments, sound recording equipment, recently released CDs and music education facilities.

I undertook a content analysis of NZM because it is a New Zealand based publication reflective of the country’s music industry. As a free publication, it is easily accessible and is widely read by musicians, fans and music industry personnel alike. Thus it is the ideal media product from which to explore the representation of gender in popular music in New Zealand. As Shulamit Reinharz claims, content analysis of magazines enables feminist researchers to examine the ‘cultural expression, production and perpetuation of patriarchy [and] … the resistance of subgroups to these forces’ (1992, p.150). I chose not to analyse similar international publications. Andra McCartney (1994), Jennifer Brown (1995) and Paul Theberge (1997) have already carried out this task adequately, and although their work needs to be updated, my focus is on the New Zealand context in any case. My content analysis is concerned with quantitative (how many women and men feature in articles, reviews, advertisements and in the annual directories, and in what capacity are they mentioned or depicted?) and qualitative (how does gender feature in the discursive domain of the magazine?) concerns. I also ask crucial questions about the context of the publication. Who, or what corporation, owns NZM? Who is the target readership? How is the target readership constructed within its pages, and how are they targeted? Who are the advertisers? What is its circulation? The answers to these questions and more can be found in section 4.3.6.
2.6. Conclusion

Epistemological issues are at the heart of social research. Our assumptions about the production of knowledge are embedded in our research methods and methodologies. Appropriate methodologies and methods depend upon an explication of epistemological concerns. Feminism has weighed into the field of epistemology in challenging and innovative ways, producing incisive criticisms of ‘malestream’ social research and offering unique insights and methods for avoiding the pitfalls of exploitation, universalism, objectivism and objectification. Popular music studies, on the other hand, have tended to conflate methodology and method, offering only the latter in the guise of the former. Social research in popular music has much to learn from feminist methodology, particularly when locating music, musicians and music industry personnel in their social and historical context. I have argued that revised versions of feminist standpoint theory, when united with indigenous methodologies and poststructuralist theories of power and discourse present an apt set of tools with which to analyse popular music production in context. I have shown how these methodologies inform the methods I have used to study the gender dynamics of sound engineering in New Zealand, and proceed now to present the findings with reference to technology, gender segregation in the workforce, and analytics of domination, resistance and solidarity. In the following chapter, I untangle the discursive production of sexual difference in sound engineering with reference to theories of power.
3. The Negotiation of Power and Gender in Sound Engineering

3.1. Introduction

It has often been said that music is like a language. In this analogy, the specific functions of music and language are collapsed. Though the simile is cliché, it draws attention to the similarities between music and language. Both are signifying systems imbued with meaning. Both are polysemous: the meanings are in turn deciphered, not necessarily in ways faithful to the meanings intended by the performer or speaker. Meaning, in both cases, is not singular, but neither is it limitless. It is constrained by what it is possible to express and what it is possible to interpret. Music, like language, is implicated in the production and circulation of meanings. When we create music, we are actively involved in the processes of signification, just as surely as we are when we listen to music. The ability to make meaning is the ability to participate in what Foucault might call ‘truth regimes’. By making meaning, we are exercising power, and contributing to the processes whereby certain truths come to represent ‘objective’ truth and other knowledge is subjugated. But what happens when some people have an enhanced capacity to create and disseminate musical meaning, while other people do not? When access to the means of musical production is not democratic, the ‘truths’ produced are not democratic either. Questions of power are intrinsic to the study of popular music production.
This chapter seeks to reveal the discursive production of ‘truths’ about gender in that arena of popular music production known as sound engineering. By examining the discursive domain of gender, that is, what it is possible to say about gender in sound, and what is not said, I draw attention to the production of knowledge as a mechanism of power. The gendered ‘truths’ that circulate about sound engineers and their work discourage many women from entering the occupation by essentialising it as something in which men excel and of which women are less than capable. Those women who do enter are met with further obstacles resulting from the discursive production of sexual difference. My analysis of the discursive field of sound engineering utilises Michel Foucault’s (1972, 1977, 1978, 1980) analytic of power/knowledge.

Women become sound engineers despite the constraints imposed by gendered discourses, and this confirms that there is more to power than simply domination and subjection. Women sound engineers resist domination and negotiate subjection, and although one may look to Foucault’s work, for example, to explain resistance, his explanation is not altogether successful. Like Amy Allen (1999), I believe Judith Butler’s (1990, 1991, 1993) concepts of performativity and the variability inherent in the citation of gender norms (citationality) provide a more convincing explanation of the possibility of personal agency in the event of gender constraint. Performativity and citationality help to explain how, in their everyday working lives, women resist the gendered norms that pervade the music industry and circumscribe their sound engineering endeavours.

Women sound engineers draw on their own personal resolve, performing gender in uncommon ways that implicitly question the discourses of sexual difference. In doing so, they contribute alternate, personally empowering
responses to the discursive formation. Women’s individual interventions into sound engineering work are as yet insufficient to reconfigure the occupation as gender-egalitarian and woman friendly. This is in contradistinction to Jacques Attali (1985), who contends that music has now entered the ‘age of composition’ whereby the production of music is putatively democratic. With reference to Hannah Arendt’s (1958, 1963, 1970) notion of power as ‘acting in concert’, I suggest that until sound engineers embrace a notion of solidarity that extends to both sexes, their niche in the music industry will continue to uphold male prevalence. We can already imagine what it might look like to ‘act in concert’ to make sound engineering a true option for both genders, if we consider that women in sound engineering have sometimes benefited from mentoring relationships with established sound engineers. Men have occasionally initiated mentoring relationships with women, and this in itself shows that sound engineering need not be segregated by gender. Mentoring is an encouraging example of solidarity, but, as I demonstrate, this solidarity will need to be enacted on a much larger scale for the sexist power relations in the occupation to be overturned.

In section 3.3. I discuss theories of power and demonstrate, with reference to interview material, the gendered dimensions of power evident in sound engineering. At the outset, a historiography of sound reinforcement and popular music recording is useful. Important contributions include those of Kealy (1974, 1982, 1990), Jones (1992), Porcello (1996, 2003, 2004, 2005), Theberge (1997), Sandstrom (2000), and Zak (2001). Only Sandstrom and Diamond generate findings on the occupation that analyse gender issues. For this reason, I also look to the feminist social studies of musicians produced by Bayton (1989, 1990, 1997, 1998), Brown (1995), and Leonard (2007). Their research attends partially to the gendered dimension of working relationships between musicians and sound engineers and thus is highly relevant to an
exploration of gendered power dynamics in this milieu. I argue that power is evident in discourses of sexual difference, and thus the way it is exercised in sound engineering has direct consequences for women. Gender is embedded in every area of popular music production, and social research into sound engineering is yet to address this issue adequately.

To contextualise the positions of women and men in sound engineering work, I now provide a gender break-down of the sample of participants’ work experience, in terms of their induction into sound work, their employment situations at the time of interview, and whether they specialise in recording or live sound or work in both domains. Respondents commonly told me they learned their craft through an aggregate of factors which could include any combination of the following: broadcasting work, mentoring, self-teaching, informal sound production company apprenticeships, informal recording company apprenticeships, and formal education. It would appear that an opportunistic approach to learning is beneficial for sound engineers, equipping them with a comprehensive set of skills. However, of my sample of 41 engineers (3 responses were excluded for inadequate detail), men were twice as likely to have learned from a combination of experiences (n = 10) than women (n = 5). In addition, women in the sample were more likely to have acquired their engineering skills solely through formal education (n = 6) than any other means. In contrast, only one male respondent stated he had learned through formal education alone. This could be reflective of men having more avenues open to them through which to learn, compared with women, although without a full scale quantitative study it is difficult to draw definite conclusions.

The majority of respondents were in formal sound engineering employment at the time they were interviewed, but again, this result favoured men (n =
Ten women respondents were in formal sound engineering employment, while four were musicians/composers, four were students, and four men and four women were employed as sound engineers on an informal basis. Again, in the sample, men had an advantageous position compared to women, as they were more likely to have secure work and a steady income.

An interesting gender divide was evident in specialisation too. Half of the sample were skilled in both live sound and recording engineering, but many more men were in this subset (n = 14). Women were half as likely to profess an ability to work in live sound and recording (n = 7) and were approximately as likely to specialise in either live sound (n = 7) or recording engineering (n = 8). This may well be indicative of men’s overall privilege in sound work, in that they may have more opportunities for a wide range of sound work experiences, and accumulate a vast array of skills, whereas women’s opportunities for sound work appear to be circumscribed, and thus their skill sets are reduced. However, I am cautious of the representativeness of these results, based as they are on a largely snowballed sample of engineers for a qualitative study. Further quantitative research is needed here to ascertain whether these tentative conclusions are more widely reflective of gender relations in sound engineering throughout the wider New Zealand context.

Before embarking on a historiography of sound recording, I will provide a brief explanation of the work that recording and live sound engineers do, touching upon the traditional learning path and also outlining alternative avenues into sound work. Kealy’s (1974), and Porcello’s (1996) theses, as well as Zak’s (2001) book, are all notable in their comprehensive explication of the work of recording engineers, and readers who wish to learn more about the recording process are referred to their work. While an extensive ethnography
of the work of live sound engineers is yet to be done, Sandstrom (2000) outlines some of the gender issues at play in this domain.

The tasks of a recording engineer typically involve microphone selection and placement, setting up musical equipment in the studio, monitoring and balancing the recording levels in the control room, operating the recording equipment, equalisation (manipulation of sound waves), sound editing, making aesthetic decisions and making the recording process a pleasant experience for the clients. Sound engineers are also involved in creating the final mix and the mastering process. Thus it is evident that the job of a sound engineer is not purely technical: it is also aesthetic and interpersonal. The sound engineer is offering the client a service: although he/she has input into the creative process of making a musical recording, the producer has ultimate veto power, and it is the sound engineer’s job to capture the best possible recording as per the producer’s wishes, within the budgetary constraints. As one studio’s house engineer position description\textsuperscript{10} states, duties must be performed with a ‘client first’ attitude.

The traditional career ladder of sound engineering begins with the bottom rung of volunteer trainee. The trainee is typically allocated routine tasks such as meeting and greeting clients, offering refreshments, running errands, tidying up and cleaning the studio (including kitchen and common areas), reception/administrative and telephone duties, and monitoring equipment to ensure it is all in working order. The trainee has little, if any, input into aesthetic decisions in a recording session. From there, the trainee may be promoted into a paid tape operator position, which is more technical than the work of the trainee, and involves cueing recordings, operating the recording equipment, and editing. Further opportunities for aesthetic decision-making

\textsuperscript{10} Recording studio’s house engineer position description, anonymous.
and learning are presented if an established engineer is absent from a session, or leaves their job. It is then the task of the tape operator, or assistant engineer, to perform in the recording engineer’s stead. This can be a daunting set of circumstances for the budding trainee who may lack experience, expertise and confidence in running a session, and finds him/herself making aesthetic decisions, setting up and operating equipment heretofore unfamiliar to him/her.

In live sound engineering, the traditional ‘career path’ begins as a volunteer crew member for a sound company, who as part of a team, is responsible for loading the PA and other assorted sound equipment into the venue and setting it up ready for a live event. At the end of the event, the crew member then packs up the equipment and delivers it back to company headquarters. Traditionally, this work has involved heavy lifting. A team member may progress into paid work performing the same tasks. He or she may also be promoted further into a more technical sound engineering position, either as a monitor engineer or a front-of-house engineer.

A company sound engineer is charged with the duties of equipment maintenance. In the live setting, he or she also takes care of microphone selection and placement, connecting the microphones to the mixing desk, and sound manipulation in the form of equalisation, balancing of musical parts, and volume control, via the mixing desk. Where the front-of-house engineer is responsible for the sound transmitted to the audience, the monitor engineer controls what the musicians hear onstage. Because of their integral role in the production of live music, a crucial aspect of their job is client service: liaising with the musician/s to understand and then reproduce the music the way the musicians want it to sound.
The company sound engineer may also be able to perform rudimentary equipment repair work, but highly technical repairs will be referred to a systems technician, who fixes sound equipment on behalf of the manufacturer.

But this is merely the traditional path of a live sound engineer. In reality, a variety of other paths are followed too. MAINZ, for example, offers a year long training programme in live event management which teaches students how to put together a stage, setting up and using a PA (sound engineering), as well as lighting technician skills. In addition, bands, musicians and live music venues may employ sound engineers to work primarily for them. Sometimes, these sound engineers will act as mentors, transmitting their skills to another aspiring sound engineer. It is therefore interesting that sound companies typically enforce a career path beginning as a crew member lugging gear, as it is not entirely a necessary part of sound engineering skills and bears little relation to the work that live sound engineers actually do. Further in this chapter, I will expose these lifting requirements as gendered, a form of indirect discrimination.

But ‘career ladder’ is perhaps an inadequate metaphor, given that there are various other lesser known avenues through which an individual may pursue a career in record production. Recording engineers may be entirely self-taught, as some of my respondents claimed to be, having experimented with rudimentary record equipment to record bands, before upgrading to more advanced technology, establishing a home or portable studio and at the same time garnering skills and a reputation. Practical knowledge, in this instance, is attained through a trial-and-error process, from networks of sound engineering friends and colleagues, and from reading trade magazines and
operation manuals. Other recording engineers may find their beginnings in the audio engineering classroom, although this approach is highly contentious in the popular music industry, as I will demonstrate in Chapter Five. Still other recording engineers may begin as live sound engineers, transferring appropriate skills from one musical production domain to another.

3.2. **A Historiography of Sound Production in Popular Music**

3.2.1. *Early Research on Sound Production*

An early study in this area, Edward Kealy’s 1974 PhD thesis *The Real Rock Revolution: Sound Mixers, Social Inequality and the Aesthetics of Popular Music Production* is an engaging examination of the history, changing role and changing social position of the recording engineer in USA popular music production. In order to understand the position of the North American recording engineer, Kealy became a participant observer in recording studios in Chicago, Illinois. His results were evidence of the complex web of groups competing for power, financial gain, prestige and autonomy within the popular music recording industry, a competition that he believed recording engineers were losing.

The history of recording technology demonstrates the extent to which the social positions of recording engineers have shifted due to the technological developments in sound recording. Up until the 1940s, recording technology was expensive: record companies could only afford to build a few recording facilities and they exercised control over recording quality standards. The same record companies would finance the invention of recording equipment and in turn would employ the inventors to train technicians to operate the
machinery (Kealy 1974, p.42). These technicians, or ‘recordists’ as Kealy names them, had specialist knowledge as part of a handful of people who knew how to use the equipment, some of which they had built themselves (Kealy 1974, p.43). In this sense, they exerted a great deal of influence into the sound quality of recordings (Kealy 1974, p.170). The recording was instantaneously cut onto record on the first take so there was no chance of a repeat performance to eliminate mistakes. It was crucial for the engineer to coax the performers into the right position with their instruments, around a single microphone, so that the mix was balanced. It was vital that performers played their parts accurately (Kealy 1974, p.42).

The 1940s invention of tape recording lead to major changes in the way music was recorded and it altered the job of the recording engineer. Tape enabled editing through splicing, in which the most satisfactory parts of a performance were pieced together for an overall ‘better’ recording (Kealy 1974, p.43). This meant that the responsibilities of recording engineers increased. Aesthetic enhancements were now possible after the recording process, whereas previously they were manifest only in preparation for the recording. Another way in which tape altered the occupation was in making it more accessible as a career option. Tape was relatively cheap compared with its predecessors, wax and acetate blanks, and its affordability made it accessible to a wider market. Furthermore, the affordability of recording equipment led to the establishment of independent recording studios (Kealy 1974, p.44). The growing market for recorded music and growth in recording studios (particularly independents) placed recording engineers in higher demand. During this time of growth for the popular music industry, the production of popular music was organised into three modes: bureaucratic, entrepreneurial and craft. Recording engineers’ roles were specific to each mode.
The major recording companies comprised the bureaucratic mode of popular music production, and their aim was to ‘process the fads and fashions in popular music taste in such a way that risk to investment was minimal and returns could stretch over a period of years’ (Kealy 1974, pp.46-47). Thus they responded to the popularity of independently recorded music through imitation by selling cover versions by their contracted artists, or by developing new stars to imitate artists who already existed (Kealy 1974, p.47). Often the recording engineer would be instructed to imitate the recording aesthetic of the new independent music, in a quest for the ‘authentic’ sound (Kealy 1974, p.47). The bureaucratic mode of popular music production was further standardised with the unionisation of recording companies (Kealy 1974, p.48). Kealy pointed out that

This meant that the sound mixer – A & R man [sic] relation at a recording session was management – worker in nature obligating the sound mixer to practice his [sic] craft in recording music in accordance with the company’s business policies as represented by the A & R man’s [sic] musical values unless specifically stipulated otherwise by the union contract (Kealy 1974, p.48).

In other words, the A & R (Artists and Repertoire) representative, who acted as a supervisor on behalf of the company and liaised between the musicians and the engineer, determined the recording engineer’s aesthetic principles. The engineer and the musicians had no formal direct relationship in this mode, and it is clear where the union engineer was positioned in this hierarchy (Kealy 1974, p.48).

Throughout the 1950s, entrepreneurs took advantage of the affordability of new recording technologies, and, noticing the demand for local music, set up their own recording studios where local musicians were able to make demonstration tapes (Kealy 1974, pp. 48-49). Studios also functioned as
audition rooms: if the entrepreneur identified a potential hit recording, it would be pressed into a record and distributed. The entrepreneur would push his or her recordings for local radio play. If the record became a hit, the entrepreneur could ‘try to expand his [sic] operation or attempt to sell the master tape to a larger recording company’ (Kealy 1974, p.49). Indeed, many well-known musicians started their careers this way. Elvis Presley initially recorded at the Memphis Recording Service in Tennessee, the products of which Sam Phillips sold to RCA Victor (Kealy 1974, p.49). By the 1960s, it was de rigeur for major recording companies to use the independents as sources of new talent, and this symbiotic relationship helped the independents to flourish (Kealy 1974, p.50).

Independent producers also operated in the entrepreneurial mode of popular music production. These producers had usually worked in independent recording studios, had vital knowledge of the musical tastes of young audiences, and had contacts with up-and-coming bands and artists. By the mid 1960s, the popular music market had become turbulent: it had fragmented, and large record companies found it increasingly difficult to predict what music audiences would purchase (Kealy 1974, p.51). Under these turbulent conditions, major record companies turned to independent studios and independent producers, negotiating short-term working relationships with them (Kealy 1974, p. 40). Independent producers were sought after to the extent that many tried to record and market new talent, with limited success. Those who did succeed established their own studios or signed contracts with major record companies (Kealy 1974, p.52).

The craft mode emerged when a popular musician or band became a ‘self-contained production unit’, that is, they demanded a large degree of creative control over the recording and marketing of their music (Kealy 1974, p.52).
The artists who were in a position to command this creative control were financially secure enough to build their own recording studios and start their own record labels. The artists could engineer and produce their own music if they so wished (Kealy 1974, p.53). Where recording engineers were required in the craft mode of production, they were very much beholden to the demands of the artist-producer (Kealy 1974, p.54).

The invention of tape and the resulting turbulence of the popular music market effectively expanded and decentralised the music industry, creating a new demand for recording engineers. However, the expansion of the industry had mixed blessings for recording engineers. The competition between union and non-union studios forced the recording industry to take on more and more characteristics of the service sector, particularly when the demand for studios stabilised in the late 1960s and early 1970s to the extent of an oversupply of both studios and technicians. The job of recording engineer was rearranged further to include the selling of his or her skills to clients (usually the producer or the A & R representative) (Kealy 1974, p.81). Kealy found that the newer generation of mixers often find themselves working with clients who want ‘the best for the least’. The problem is that they do not stop there, but often demand that the mixer change his [sic] bundle of job tasks, his [sic] patterns of interacting at his [sic] work, his [sic] aesthetic standards for recording, his [sic] very personality. In general, he [sic] must become a salesman [sic] to succeed (Kealy 1974, p.101). This was increasingly true for union recording engineers in major record companies as well as the unorganised recording engineers in smaller independent studios (Kealy 1974, p.92). Exploitation was rife as recording engineers were often at the mercy of their clients; they could afford to lose them, so engineers felt obligated to agree to unrealistic working conditions such as fourteen-hour shifts and being required to work through periods of ill health (Kealy 1974, p.105). Consciousness of the right to fair working
conditions and the conflicting need to retain demanding clients put union recording engineers in a double bind.

Kealy discussed the various ways that recording engineers learned to be subservient to their clients. They were expected to adapt their personalities to suit each individual client. The recording engineer had to quickly assess whether the client required a deferring, quiet and efficient engineer, or one who made artistic suggestions, possibly even directing the session (Kealy 1974, pp.108-109). Recording engineers were often required to compromise their standards of recording quality. For example, certain clients might not have allowed an engineer to exercise the full range of his or her skills (Kealy 1974, p.110). The engineer and the client would sometimes disagree over the quality of a recording. The engineer needed to defer to the client, which could be detrimental to a recording engineer’s experience of his or her work, making it more difficult to take pleasure in, and identify with, the product and to gain a sense of self worth from it (Kealy 1974, p.114).

Recording engineers were required to defer to clients, but they were often also subjected to unfair double standards. If a recording was successful, an engineer would receive limited recognition in the form of album credits. On the other hand, if the client was not happy with a recording, the sound engineer would often be made the scapegoat. Currently, recording engineers are likely to receive album credits for their engineering work, in whichever mode of music production they are involved in, however it is still the norm to credit the engineer in fine print, underneath the producer’s credit, as if in order of importance. In addition, the recording engineer typically does not accrue royalties even when their input into the recording is decidedly aesthetic, whereas performers and producers do. Recording engineers are, it is believed, adequately remunerated in wages. Kealy often made reference to
the ‘dirty work’ that recording engineers routinely perform as part of their role in the recording studio. Although he did not define dirty work, it is fair to infer that he was referring to work that is relatively low in prestige, that is not autonomous, that is exploitative and poorly remunerated.

The job of the recording engineer expanded through the 1950s and 1960s from a largely technical role to a technical, artistic and service role. Kealy was concerned that the development of tape led to the ineffectiveness of unions for recording engineers, and was uneasy about the lack of recognition accorded recording engineers. He argued that recording engineers should be recognised as artists, and he put forward a strong case that recording engineers are denigrated in the music industry. Today his argument could be strengthened through an interrogation of the concept of ‘power’.

Kealy implies that power is relative, and that it is exercised rather than possessed by a particular group of people. This converges with today’s understandings of power. But Kealy did not define power, and his use of the term implied that it was exercised in one direction within social relationships, whereby one group of people consistently exercises power over another, with no recourse to negotiation or resistance. Power, for Kealy, was stable and unilateral:

I would explain the formation of relationships of social inequality as a process of alienation whereby some of the collaborators exercise power, usually through control of the resources necessary for the work, to force the distribution of the bundles of job tasks necessary for production so that other collaborators have to do all the dirty work. In this case, sound mixers’ experience of inequality results from sound marketers and sound makers enforcing conventions for collaboration that require mixers to do most of the dirty work of popular music production for the others’ relatively greater benefit (Kealy 1974, p.168).
Kealy’s ‘sound marketers and sound makers’, or clients, exercise power over sound mixers. His conflation of power with force suggests domination over sound engineers who are incapable of resistance. Kealy’s understanding of ‘power’ leaves readers with an impression of clients dominating recording engineers.

A few passages in Kealy’s thesis hint that recording engineers negotiate power with their clients, but these were left untheorised. For example, recording engineers were known to call off sessions in which clients damage their equipment (Kealy 1974, p.151). Recording engineers had the means to deceive a client about the mix, for example, if a client demanded that the engineer make an instrument too loud in the mix to achieve a proper balance with other instruments. In this instance, the recording engineer would appear to acquiesce by mixing the instrument in question louder through the playback headphones than it was being recorded (Kealy 1974, p.150). Recording engineers asserted their right to protect their business resources, and their right to enforce standards of recording quality. Kealy discussed ways in which recording engineers used deference to the client as an unacknowledged bargaining tool, or a kind of leverage. He described instances of recording engineers employing trade-offs such as underreporting studio time, thereby lessening the rental fee. The recording engineer might also defer to the client in public. The purpose of such extreme displays of subservience was to keep the client favourably disposed towards the engineer. The motivation for the engineer was that if the client was favourably disposed toward the engineer then he/she might be able to negotiate fairer working hours (Kealy 1974, p.159).

Today, one can supplement Kealy’s sociology of sound engineers in the recording studio by defining terms such as ‘power’ and ‘resistance’. Power
relations are now understood in more complexity: they are open to negotiation and resistance and they shift depending on the contextual positions of the subjects involved, such as gender, race, ethnicity, age, career stage, nationality, sexual identity and so forth. Today’s sociology of sound engineers might include examination of the contexts in which they are relatively privileged. For example, sound engineers are sometimes in the position to exploit employees. Apprentices employed in recording studios are often required to perform less prestigious studio production tasks and to do general maintenance work, such as cleaning the studio, receiving and storing production materials, operating tape machines, and setting up equipment for sessions for little or no pay. In contrast, the recording engineer will operate the console to mix, remix and master the sounds produced, and will typically receive a wage or a set fee. The recording engineer proper performs the more artistic tasks while the apprentice performs the undesirable menial tasks, often for no pay. In this case, it is really the apprentice who does the ‘dirty work’ and the recording engineer exercises power over the apprentice.

One might also consider that recording engineers are in a relatively privileged position of power in comparison to amateur musicians. Many amateur musicians perform music on a local level, in small towns, to tiny audiences. Amateur musicians seldom earn enough money to upgrade their gear, and recording time in a professional studio is often financially out of their reach. It is a mark of the relative power of the established recording engineer that he or she can charge a set hourly fee for services, while many performers can barely cover venue and PA costs for their live shows. By paying attention to the arena of amateur musical production – as well as the domain of the professionals – this power differential can be accounted for.
The rise of academic feminism since the 1970s has encouraged social scholarship to pay attention to the role of gender in social relations. All of Kealy’s respondents were male, and he admits that he was only aware of two women working as recording engineers in all of the United States of America at the time, and both were in the training process (Kealy 1974, p.82). The figures I provide in section 5.4. demonstrate that, three decades later, women continue to make up a minority of sound engineers in New Zealand. A feminist sociology of sound engineering for popular music might consider why the occupation is severely gender-stratified, and how masculinity and femininity are constructed within the industry. Nonetheless, Kealy’s research was groundbreaking in that it demonstrated the extent to which sound engineering is pervaded by unequal power relations that disadvantage sound engineers. He sheds light on the nature of working relationships within the recording studio, particularly between engineers, musicians and producers. His study was sensitive to historical technological developments that have contributed to the reallocation of tasks in the process of popular music production, a renegotiation that successful musicians have used to their creative advantage with some unfortunate corollaries for sound engineers in the form of decreased demand and simultaneous diminishing autonomy.

In the 1980s, scholarly contributions to studio production knowledge tended to concentrate on the working relationships of the agents involved in the production of popular music. They built on the comprehensive sociological framework which Kealy established. One such example is Antoine Hennion who argued for the recognition of the ‘creative collaborators’ who attempted to anticipate audience’s listening desires when creating a pop song in order to ensure its commercial success (1983, pp 160-161). Paul Clarke’s article is interesting in its use of gendered pronouns and metaphors. Like Kealy, he notes that changes in working relations and aesthetics in rock production
have been influenced by technological development. He describes the rock recording artist as a musical ‘scientist’ who ‘masters’ the equipment in the ‘audio workshop’ (Clarke 1983, pp. 195-198). This imagery discursively associates rock musicians with masculinity, technical prowess, specialised knowledge and male-dominated fields such as science and mechanics.

3.2.2 Sound Production Scholarship in the 1990s
Power and control are of principal concern to Jones (1992), who incorporates a historical overview of technological developments in sound recording in his study. As he puts it: ‘[t]he ideology of rock, and therefore its meaning, revolves around sound. Recording technology, as the means by which sound is manipulated and reproduced, is the site of musical and political power in popular music’ (Jones 1992, p.72). From this premise, he is able to draw out tensions and negotiations of control within the recording process, as musicians, producers, and sound engineers all give shape to the music that is created. He found that within the professional recording studio, specialist knowledge of the technology of the control room affords engineers and producers advantages over musicians, who are generally confined to the studio room: ‘Sound engineers sometimes disregard musicians, and by doing so impose their own values on a recording. Recording engineers occasionally take the attitude that the musician is technically unsophisticated and should stay out of the way’ (Jones 1992, pp.161-162). Attention is drawn to the design of the control room: it often resembles the cockpit of an aeroplane (Jones 1992, p.157). This is a telling metaphor, for while sound engineering is a male dominated profession, so is the occupation of pilot – an insight that Jones fails to recognise. Gender and race are conspicuously absent from his study. However, the recognition of relations of power in popular music production is an excellent launching pad for gender analysis, although Jones neglects to define these terms.
Like Kealy and Jones, a number of scholars describe the world of recorded sound through a history of the development of recording technology (see Welch and Burt 1994; and Malsky 2003 for an historical account of the development and use of magnetic tape). Millard’s (1995) account is useful in understanding the interrelationship between technological developments and changes in recording industry occupations, for example (and most notably for this study) that of recording engineer. In contrast to Kealy, he suggests that the basic skill bundles of recorders from the phonograph era are much the same as skill requirements of recording engineers today: technical, musical, interpersonal and organisational (Millard 1995, p.262).

The advent of electrical recording and the passing of the acoustic recording age brought with them some important changes. The new technologies contributed to a shift in the recording studio hierarchy, whereby the recordist, now referred to as the recording engineer, gained more prominence because of his or her technical expertise, which became increasingly specialised (Millard 1995, pp.267-268). The changes also contributed to a redefinition of recording roles:

- The division between the work of recording and musical arrangement had been nebulous or even nonexistent in the acoustic era… In the electrical era these functions were divided up and formal distinctions made between technical and artistic tasks.
- On one hand was the engineer, who operated the equipment, and on the other was the musical director… The former concentrated on his meters and kept the dynamic range of the recording within the capabilities of the equipment (Millard 1995, p.269).

Millard’s overview of technical innovation and its relationship to the culture of recording is extensive, detailed and illuminating. He demonstrates sensitivity to the role of racial dynamics in the development of American musical styles during the nineteenth and twentieth centuries, a sensitivity that the majority of scholarship in this area unfortunately has lacked. However, he
reproduces gender as a blind spot. Women feature in Millard’s work primarily as performers and consumers, and he neglects to explain why this is the case. There is no acknowledgement of male domination of the music industry, no historical account of the discursive production of masculinity in the physical sciences that propelled recording technology developments, nor in the social organisation of record companies and recording studios. It is almost as if the preponderance of men in these arenas is unremarkable, a product of mere coincidence.

Paul Theberge considers more recent changes in popular music-making with the development of digital music technologies, and reminds us that the rise of a music technology to popularity is dependent not only upon its design features but also its marketing (1997, p.25). His study is concerned not only with the recording industry but also with the musical instrument and electronics industries. He suggests that the introduction of new music technologies such as MIDI (Musical Instrument Digital Interface) have altered the way popular music is produced and have brought about a new relationship between musicians and consumption (Theberge 1997, p.5). Music technologies are related to gender stratification, and Theberge draws considerable attention to the construction of the readership of musician magazines as male and the concomitant processes whereby female readers are marginalised (1997, pp.122-126).

3.2.3 Recent Research on Sound Production

The historical developments and technological changes in the music industry have undoubtedly contributed to sound engineering’s altering role in the shaping of the musical production aesthetic. Like his predecessors, Albin Zak argues that every individual who participates in the recording of popular music, whether songwriters, arrangers, performers, engineers or producers,
are best considered ‘recordists’ (Zak 2001, p.xii; see also Warner 2003, for an explanation of the popular music production process since digitisation as the culmination of the efforts of a creative team). The specific tasks accorded to each individual in the recording process are often shared, thus the work of recordists - whether they are producers, musicians or engineers - can be said to overlap. Their work encapsulates the myriad aesthetic decisions within the recording studio that contribute to the construction of a work of popular music (Zak 2001, p.xii). Central to Zak’s thesis is the notion that a rock recording is itself a text, not simply a representation of a musical text. The sonic characteristics of a recording are its textual content. In other words, rather than considering a rock recording as a presentation of a song whose ideal listening context is a live performance, rock recordings are better understood as compositions themselves, where the recording studio and all of the sound equipment that belongs to it are musical instruments in their own right (Zak 2001, pp.37-46).

Due to his aesthetic focus, Zak tends to overlook the socio-political factors that structure rock recording as the domain of white males. He only alludes to gender in one paragraph, stating that:

This trend toward greater autonomy for recording artists has led to partnerships in which the production credit is shared between the producer and the artist, or simply the artist and the engineer. This is the sort of arrangement where women producers are most often found. For although historically few women have been producers in the traditional sense, many recording artists have done much or all of their own production work. These include Joni Mitchell, Sheryl Crow, Kate Bush, Lauryn Hill, Sinead O’Connor, Liz Phair, and Bjork (Zak 2001, p.173).

While this is an acknowledgement of men’s domination of production, the absence of any critical exploration of the factors influencing this dominance gives the impression that this is a natural state of affairs rather than a social construction, that it is an unalterable situation, and that women’s
marginalisation from key roles in the recording process is unworthy of comment. These assumptions need to be challenged. In any case, if we place producers and engineers under the rubric of ‘recordists’ who make a contribution to the aesthetic construction of a rock record, then it stands to reason that women’s under-representation as producers and engineers will have a gendered effect on the musical output. When women are marginalised from the compositional process, they are also marginalised from what comes to be considered rock music.

Zak is primarily concerned with describing all of the aesthetic factors and mechanisms that contribute to the rock recording process thus he does not have much to say about the social dynamics of recording. His approach is musicological rather than sociological. Nonetheless, he does offer some insights into the respective roles of specific types of recordists, and devotes an entire chapter to describing and giving relevant musical examples of the tasks performed by engineers and producers. Ultimately, recording engineering requires ‘musical, organisational, and interpersonal skills as well as technical expertise’. It is evident that the function of the engineer is not to simply set up equipment and operate machines, instead he or she also has input into the creative process (Zak 2001, p.169). Because the tasks of recordists overlap, some engineers may oversee the compositional process as a whole in the manner of a producer, especially in the absence of a designated producer, or when the performers wish to share production duties with the engineer (Zak 2001, p.170).

Virgil Moorefield reiterates the argument that music production has been transformed via technological developments from a technical pursuit into an artistic vocation (2005, p.xiii). The enhancement of technical capabilities underpins his tripartite argument: that contemporary music producers are
composers as well as technicians; that the producer is an *auteur*, a concept borrowed from film theory; and thirdly that music production is increasingly an exercise in creating sounds which cannot be reproduced in a live performance context, where previously the goal of recording was to replicate a ‘live’ sound. It is noteworthy that most of the producer/auteurs he waxes poetically about are white, and all are male. I do not intend to suggest that the producer-as-composer is not a valid area of study, or that the producer/composers Moorefield includes in his cross-section are unworthy of critical appraisal. However, it is a fallacy to uncritically adopt and adapt *auteur* theory to the production of music without a thoroughgoing critical examination of the gendered and racial politics of canon formation.

Moorefield effectively sets forth his contribution to the canon of great producers, with no consideration for why it is that his producer/auteurs are, by and large, white men. Again, issues of sexism and racism in technological access, training, and employment do not warrant a mention. In fact, the producer is described consistently using male pronouns, except for one sentence on the penultimate page of the book: ‘He [the producer] (or she, one hopes; the field is still almost entirely male-dominated) can play many roles, even varying from project to project’ (Moorefield 2005, p.110). This might have been an opportune opening for a discussion of gender segregation in the music industry, but no such discussion ensues. The racial make-up of the music industry warrants even less of a mention, which is to say, none at all.

The first and third aspects of his threefold argument are more convincing. Certainly, music producers can be considered composers, or at the very least co-composers, in that they contribute to the production of musical sounds on a recording, either in a material, practical way or through more broad aesthetic decisions. It is also true that many popular music recordings are purely products of their creative environment in the recording studio and
could not be performed live, though this is not the case for popular music recordings where the goal is to ‘capture’ the live sound. His arguments provide an illustrative background to my own study which is more concerned with the discursive production of the sound engineer as a gendered being.

Ethnomusicological and popular music studies research on sound engineering has explored Tamil villagers’ creative use of audio cassettes in devotional activities as an example of an active meaning making process (Greene 1999); the discursive production of concepts such as ‘overseas’ by South African sound engineers (Meintjes 2005); and the importance of tacit knowledge and interpersonal skills in the work of recording engineers (Horning 2004). A variety of ethnomusicological research on sound engineering is presented in Greene and Porcello’s (2005) book Wired For Sound. The authors within subscribe to a broad definition of sound engineering work. Greene describes it as ‘the practice – by individuals, groups, institutions, corporations, or governments – of using sound technologies to engineer meanings, functions, and social strategies in musical cultures and in the world at large for strategic cultural, aesthetic, political, and economic ends’ (Greene 2005, p.4). This is an important statement, because it draws attention to the way meaning is constructed within and through the production of music. Greene pinpoints this explicitly as a political reality, or, in Foucauldian terms, an operation of power.

In many places the advent of western sound-engineering technologies has reinforced trends toward western equal-tempered scales with discrete pitches. Thus as western sound technologies are drawn into music-making around the world, their hard-wirings begin to structure local musical practices in certain ways, imposing their own musical logics onto the societies that adopt them (Greene 2005, p.6).

Thus when he states that the ability to produce music is also the ability to shape meaning in a political way, Greene is concerned with how western
sound technologies shape music on a global scale, and questions the implications of this in terms of western dominance. His assertion that politics are intrinsically embedded in popular music production through the production of meaning is a founding premiss of my own study.

We can find a less academic account of innovations in the recording of popular music in *Good Vibrations: A History of Record Production* by Mark Cunningham (1996) and *Temples of Sound: Inside the Great Recording Studios* by Jim Cogan and William Clark (2003), particularly in the UK and the USA respectively. While documenting some of the more recent developments in sound technology, and detailing the interrelationship between them and changing musical trends, these works are by no means sociohistorical. No women producers or engineers feature in Cunningham’s or Cogan and Clark’s accounts, although Cunningham’s interview material with 1960s session bassist Carol Kaye is an illuminating read. Cogan and Clark describe recording engineers in heroically masculine terms. ‘At the beginning of this era, there were perhaps a dozen men who recorded virtually all the songs on the radio. They were explorers and pioneers, the audio equivalent of the first NASA astronauts’ (2003, p.11). Here, the technical world of the recording studio is figured as the masculinised territories of the rugged frontier and of the astrophysical domain of space travel. The comparisons help to cement the so-called temples of sound as exclusively male terrain.

Other scholarship relevant to the field of sound includes *Aural Cultures* (Drobnick 2004), an edited collection whose underlying themes include listening as a social practice and the discursive formations of sound; Hugill (2008), for a textbook overview of the way digital technologies enhance the sonic palette of the musician; and Whelan (2006) who discusses the interplay
of musical and technical knowledge to enhance social power amongst electronic musicians in online chat-rooms.

3.2.4  *Thomas Porcello’s Ethnography of the Recording Studio*

One of the most important contributions to social research of popular music production is that of Porcello. His ethnography of ‘experience’ and social interaction within a popular music recording studio reveals the complex, shifting nature of power dynamics within this locale. He found that

> [T]he human experiences involved in the creation of music in the contemporary recording studio are constituted and experienced as dense intersections of music, discourse, and audio technologies. ... [T]he particular configuration of their relationship may vary from session to session, is actively constructed by the participants in any given session as a fundamental part of the recording process itself, and is manifested in continual social negotiation both within the confines of the session, and in each participant’s efforts to define an individual epistemology that articulates with the larger professional and popular discourses with which such local understandings of music and recording must inevitably engage (Porcello 1996, p.341).

This is not to say that we cannot pinpoint certain patterns of the exercise of power between musicians, engineers and producers, only that power is negotiable and characterised by its variability, and that subjects have options for how it is deployed depending on their own social context and their relations with other subjects in the studio. After all, these musical collaborators occupy different positions with regard to access to the technical tools of musical production and the ever-crucial expertise their use demands. Porcello illustrates this point well with reference to a producer’s anecdote about his deployment of the talkback function on the mixing console to allow or disallow performers in the studio room to hear his speech in the control room (1996, pp.91-95). The example, as well as emphasising the producer’s privileged position over the performer in the power dynamic, also underscores the omnipresence of discourse in the exercise of power.
Power relations are evident in recording engineering in the use of particular linguistic practices. Recording engineers typically negotiate several linguistic devices to successfully communicate with clients and fellow engineers. However, language also stratifies them: the effective use of language distinguishes expert engineers from those who do not possess the requisite specialist knowledge. As Porcello states, ‘Learning how to speak about sound positions one as an “insider”, and is therefore fundamentally implicated in the matrix of social and technological practices that constitute the profession’ (2004, p.735). Porcello is careful to emphasise that power is exercised via the technical discourses used by sound engineers. Access to technical jargon is political, and language can be used to mystify, marginalise and insult as readily as it is used to communicate, to teach and to compliment (Porcello 2004, p.753). The strength of this argument lies in the implied relationship between power and knowledge.

By drawing attention to the changing but omnipresent power dynamics within the recording studio, Porcello is effectively demonstrating the impossibility of making finite distinctions between the work of musicians, producers and engineers. He suggests that distinctions between their jobs are largely ideological and discursive, for each collaborator has input into all of the technical, aesthetic, performance and commercial considerations which make up musical production. Nonetheless, the separation between musician, performer and engineer persists, as ‘there are very real discursive and financial mechanisms for keeping them separate’ (Porcello 1996, p.48). Sound engineers in particular occupy an ambiguous position in the music industry with regard to both their status and occupational duties. Contemporary engineers may perform a wide variety of tasks, some of which are largely technical and/or routinized, others perhaps more
directly involving aesthetic decision-making. The particular configuration of these tasks usually varies from session to session. Historically, these configurations have been tied to existing and changing technologies (Porcello 1996, p.48).

While the majority of routine technical work falls under into the domain of the sound engineer, the sound engineer’s job has altered in response to developments in sound technology, and has increasingly involved aesthetic considerations that have traditionally been viewed as the task of the producer.

As well as being case-sensitive and historically grounded, work in the recording studio is also situated by identity politics. ‘Class, race, gender, and individual trajectories through the industry are powerfully present in all studio interactions,’ Porcello claims, and not only are they present but such considerations are subordinated to the discourses of authenticity and creative originality that pervade popular music production (1996, p.74). Ironically, Porcello himself subordinates the role of identity politics in his findings. In the majority of his fieldwork examples, he fails to analyse how class, race, gender and personal career paths inflect the power dynamics in the recording studio. One notable exception is his discussion of recording a band with a female drummer, referred to rather questionably as ‘Jon’s [the guitarist/singer/songwriter] drummer’. He summarises the situation: ‘the studio and its sophisticated technologies are forcefully constructed as male domains; when women are present, it is usually as singers ..., and they are generally expected to take directions, not give them’ (Porcello 1996, p.15). No deeper analysis of such a remarkably unbalanced situation is provided, save for his rather more astute observations regarding the discursive production of femininity as connoting domesticity, commitment, and an impediment to masculine creative freedom and authenticity. Gender, it would seem, only exists in Porcello’s study where women are present or referred to – and these
women are not accorded names. In other words, individual women are conflated with their gender and the construction of masculinity in the recording studio is, for Porcello, not worthy of analytic exploration. Implicitly, then, the gender of men involved in the production of popular music is elided, and they are figured as transcendent of gender. Such a glaring omission – the gendering of men in a male-dominated arena – demands attention and rectification.

3.2.5 Gender Studies of Sound Engineering

As I have shown, some scholars fail to acknowledge the discrepancy between men and women in production roles or they neglect to theorise the discursive association between popular music production and masculinity, while at the same time constructing a view of the industry where women simply do not exist at all. Others devote themselves to uncovering the neglected history of women in the music industry. Boden Sandstrom (2000) examines access to technology and provides crucial insight into the dynamics of power in sound engineering. She also accounts for resistance and agency on the part of sound engineers in negotiating power dynamics with clients. Hers is one of a handful of studies that discusses the work of live sound engineers.

For Sandstrom, power in sound engineering has two major manifestations. Firstly, power can refer to creative control, and she credits sound engineers with this kind of power:

To have one’s hands on the knobs or faders of a mixing board is to exercise considerable control. The sound engineer also controls the volume in the performance area and the way the sound covers that area in addition to controlling the actual mix… Usually the musicians involved and their producers have a great deal to say about the final mix during a recording session, but it is the engineer who controls the sound (Sandstrom 2000, p.290).
Sandstrom correctly understands the sound engineer as a specialist in sound technology, and the specialist’s position in the nexus of the power/knowledge relation cannot be overlooked.

Power is unmistakably present in sound engineering in issues of access to sound technology. Creative control and power in sound engineering depend on acquiring and knowing how to use the requisite technical tools. Sandstrom argues that men dominated technology and business in the music industry until the 1970s and they were able to do so because of their greater wealth and power. The result was the marginalisation of women in popular music performance and the almost total exclusion of women from technical and business roles in the music industry (Sandstrom 2000, p.293). Women were excluded from sound engineering because until recently they were unable to afford the sound equipment necessary to start their own sound companies and recording studios (Sandstrom 2000, p.297). They were effectively excluded from live sound apprenticeships because of the physical requirements of heavy lifting (Sandstrom 2000, p.294). In the recording studio, the stressful conditions of ‘constant troubleshooting and being able to repair the gear by oneself’ deterred women from the job (Sandstrom 2000, p.294). If women sound engineers overcame these obstacles, they encountered further resistance from men. Sometimes male musicians would refuse to work with a female engineer (Sandstrom 2000, p.294). According to her, men maintained their predominant position in sound because they did not wish to relinquish any social power: ‘Controlling an artist’s sound makes the mix engineer feel powerful and therefore want to guard this position carefully. Most men in these positions were not willing to share this power’ (Sandstrom 2000, p.294).

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11 Sexual segregation in the music industry, and especially in sound engineering, is discussed in depth in sections 5.3. and 5.4.
Access to sound engineering and therefore to creative control over music are gendered.

Sandstrom’s explicitly characterises power as a possession, and according to her, it is male sound engineers who possess such power. If men have a monopoly on power, it is unclear how women might loosen men’s grip on such power and become sound engineers. However, women have become sound engineers. Women have pursued sound engineering through formal and informal training, though their training has often been different in nature to that of men. While men are apprenticed into sound companies and recording studios, women in the 1970s sought formal training in the physics of sound as a solid foundation for their entry into sound engineering (Sandstrom 2000, p.297). These courses arguably have given women an intellectual edge over their male counterparts (Sandstrom 2000, p.297). Others have become adept at sound engineering outside of the mainstream music industry, from training at women’s music festivals such as the Michigan Womyn’s Music Festival (MWMF) (Sandstrom 2000, p.297). Women’s music festivals tend to stress an understanding of the collaborative process between engineers, performers and the audience, and because of this Sandstrom believes many women have developed sensitive non-hierarchical approaches to sound engineering (Sandstrom 2000, pp.297-300), a view that skirts uncomfortably close to essentialist territory.

A more comprehensive study of sound engineering would contribute to an understanding of the complexities of women’s exclusion from sound engineering. For example, Kealy noted that the advent of tape recording meant that the production of popular music grew rapidly and then levelled off. The result was an oversupply of sound engineers who competed fiercely with each other for clients. Sandstrom’s implication that male sound
engineers gain a sense of power from controlling sound and are unwilling to share this power with women may have some validity. However, she has not tested this theory and has overlooked the possibility that male sound engineers are guarding their jobs from other men as well as women. Meanwhile, she is correct to argue that certain exclusionary practices in sound engineering such as heavy lifting requirements are deployed for sexist ends. The hostility women sound engineers have experienced from men in the music industry is named for what it is – gender prejudice.

The inextricability of gender and ethnicity is brought to the fore in Beverley Diamond’s ethnography of Native Americans recording music in a studio. For the women musicians in her study, the CD is regarded as the ‘documentation of a process’. The collaborative relationships developed in the recording studio assume prominence and trust becomes paramount (Diamond 2005, p.123). Native American women musicians saw music production as encompassing more than simply the engagement with technology, but also the ‘choice of collaborators and the album concept’ (Diamond 2005, p.132). In contrast, the men in the study associated production solely with use of sound technology. They tended to use the sound equipment even in the instance where one of the co-producers was female (Diamond 2005, p.132). Because of their adherence to this gendered division of labour, Native American women musicians are challenging definitions of music production at the same time as they are reinforcing the masculinisation of technology (Diamond 2005, p.132). Sexism was palpable in the studio when Pamela Morgan, a producer who was observed in the fieldwork, had her authority undermined by male musicians in the recording studio. They would only take directions from her if her male assistant issued them. In contrast, women musicians responded to Morgan much more positively (Diamond 2005, p.127). These examples demonstrate
the need for further research into dynamics of ethnicity and gender in the processes of musical production.

A handful of studies of gender in rock highlight issues of power and gender in sound engineering, but from the perspectives of women musicians working in the genre. Bayton (1989, 1998) has tirelessly documented the struggles of women rock musicians and women sound engineers who make up a gendered minority at gigs and recording sessions. Given that creative control is important to a great number of women musicians, working with male sound engineers can be a source of tension because of their ability to manipulate sound, sometimes in ways divergent from women musicians’ wishes (Bayton 1989, p.221). Sound engineers sometimes wield their specialist knowledge in social interactions with musicians, and when the musicians are women this raises questions of gender imbalances (Bayton 1998, p.123). Bayton tends to equate knowledge with power, in contrast to Foucault who differentiates between them, and is concerned with how they interact and reinforce one another. Bayton implies that working with women sound technicians may mitigate these gendered power differences somewhat, but unfortunately women are rarely found working as sound technicians. There are a number of gendered barriers that keep women from becoming live sound engineers and recording technicians, barriers that have considerable resonance with issues I discuss in section 5.6.: feminine socialisation that discourages technical skill, incompatibility with family life, and sexism and gender discrimination (1989, pp.221-224). Women in rock music have come up with some ingenious solutions to the problems that arise due to male monopolisation of sound technology. For example, Bayton found that women in the UK established women-only PA companies, women-only recording studios, women-only sound engineering courses and set up women-only gigs (1989, pp.527-540). These solutions are an example of female solidarity in
action, and they mitigate the problems of sexism in rock and provide women with avenues for exercising control over the production of music. Female solidarity in sound engineering is an issue to which I return later in this chapter, in section 3.4.4. Bayton’s meticulous attention to the constraints women face within the rock music industry, and their resistance to exclusion through solidarity, demonstrates an understanding of power as complex, multifaceted and open to negotiation.

Jennifer Brown (1995) is also concerned with the restrictions women popular musicians face in their creative endeavours, and their capacity to challenge and overcome these restrictions. She deploys feminist interpretations of Foucauldian power and knowledge to explore women musicians’ problematic relationships with music technology, rather than engaging with his work directly, and this leads to some misrepresentations of Foucault’s work. In addition, her sample size is small, rendering her study too explorative to extrapolate to a generalised population of women musicians and musical technicians. Marion Leonard effectively redresses this imbalance by employing Foucauldian discourse analysis to a much larger sample of women musicians at a variety of different stages in their careers. She found that male sound engineers sometimes deal with women musicians in a rude, abusive or dismissive manner (2007, p.51, p.58). The recording studio has been culturally coded as masculine with femininity deemed incongruent with technology. This has an effect on how women musicians experience record production, especially when they are marginal from the control room (Leonard 2007, p.52). Power dynamics are inherent in the recording studio; tension can potentially occur over creative ownership between musicians and engineers and producers, regardless of their gender. Nonetheless, gender is a factor in how this dynamic is expressed (Leonard 2007, pp.53-54).
This overview of popular music studies literature concerned with the work of sound engineers highlights a number of lacunae that I wish to redress in this thesis. Firstly, scholars - where they have concerned themselves with the existence of power dynamics between musicians, sound engineers and producers - have often neglected to offer a comprehensive definition of power. This has lead to some confused and confusing scholarship that either mischaracterises power as a possession or fails to account for power’s variety of manifestations. Other scholars have seen fit to define power in their work, and like me, have turned to the research of Foucault for insight. Unfortunately, Foucauldian theory is not without fault, and its problems are often transferred over to scholarship influenced by him. These problems include a lack of attention to gender’s relationship to power (Leonard and Brown are exceptions to this, but their work is hampered by neglect of male representation of musico-technical experience); limited explanations of the possibility within normalisation for resistance; and an inattention to the power of solidarity. It is fitting that I should now turn to a critical investigation of the concepts of power proposed by Michel Foucault, Judith Butler, and Hannah Arendt, assessing their use for a feminist study of gender in the working world of sound engineering.

3.3 Theories of Power

3.3.1 The Enactment of Power in Discipline and Discourse
In this section I outline Michel Foucault’s (1977, 1978) analytic of power. His view of power as a relation rather than a possession means that it is inevitable in all human relationships, including those between sound engineers and their clients; it is multidirectional and open to negotiation. Further on in section 3.4.2. I will draw on Foucault’s understanding of power to show that sound engineers use power through the discourses of sexual difference that marginalise women from sound engineering jobs in recording studios and
sound companies. I also examine feminist interpretations of Foucault’s work on power, particularly those of Amy Allen (1999, 2008). Allen cautions feminists against uncritically adopting Foucault’s conceptions of power and resistance, because Foucault fails to provide a normative framework for explaining them. Because feminist projects entail a normative framework, Foucault’s work, if adopted, must be modified in order for it to be used for feminist purposes. I too believe a normative framework to be indispensable for feminists, and I explain the normative foundations underpinning my study of sound engineering as a gendered occupation. Jennifer Brown (1995) applies Foucault’s concept of ‘technologies of the self’ to analyse women’s popular music production practices, but I question its salience for sound engineering. Converging with Allen, I am concerned that Foucault’s understanding of agency fails to adequately explain what mediates and distinguishes between power and resistance. Thus, I explicate the work of Judith Butler (1990, 1991, 1993) on performativity and citationality later in section 3.4.3. to explore the successful entry of some women into sound engineering.

Power is crucial to Foucault’s conceptualisation of the formation of the subject. He argues that power has predominantly been conceived according to what he terms the ‘juridico-discursive model’. Under this model, the sovereign (or state) wields power over the powerless subjects (or citizens). The primary technique of juridico-discursive power is the law, which represses and prohibits (Foucault 1978, pp.82-85). Foucault challenges this view of power, contending that power is not a possession invested solely in rulers and institutions but instead is a relationship in which everyone participates (Foucault 1977, pp.26-27). It is not that juridico-discursive power is an erroneous model, but that it is only one of a number of ways in which power is manifest. So for Foucault, the sovereign or the governing body
exercise power by imposing laws that are occasionally enacted through physical violence. He acknowledges the existence of relations of domination, but in his view, to conceptualise power solely in terms of domination is too reductive. He describes the idea of power as domination as ‘the negative relation’. (Foucault 1978, pp.82-86)

Power, for Foucault, is ubiquitous and diffuse. It is ‘produced from one moment to the next, at every point, or rather in every relation from one point to another. Power is everywhere, not because it embraces everything but because it comes from everywhere’ (Foucault 1978, p.93). Power is not to be characterised by a dichotomous configuration wherein the powerful dominate the powerless. In modern forms of governance, power is local, capillary, and transmitted by everybody in relation to each other in a bottom-up rather than top-down manner. This exercise of power from below is in fact what gives license to and sustains relations of domination, which are maintained by institutions such as medical science, the prison, psychiatry, and through sites of production (such as musical production), families and other groups. These institutions, when they have convergent goals, form a ‘net’ of power ensuring force relations are more effective. Because these institutions comprise social technologies that maintain relations of domination, they are also the sites from which force relations are renegotiated and redistributed (Foucault 1978, p.94).

Foucault deploys the concept of power in service of his underlying theoretical goal which is a theorisation of the formation of the subject. Power relations enable the formation of the subject in that they shape human selves. Disciplinary power is a set of technologies that ensure bodies are controlled and productive. It operates by dividing bodies into dichotomous, normative categories from which privileged categories are then derived. Bodies are then
encouraged to conform to the privileged category, but the threat of punishment lurks to dissuade us from rebellion. In psychiatry, for example, the sane/mad dichotomy functions in this way. Normative formations delineate how a body should operate to be effective and productive. Norms are enforced through constant surveillance and examination, so that subjects eventually become self-regulating, ‘docile’ bodies (Foucault 1977, pp.135-138).

The human body is subject to disciplinary powers that ‘invest it, mark it, train it, torture it, force it to carry out tasks, to perform ceremonies, to emit signs’ (Foucault 1977, pp.25-26). Foucault acknowledges that violence such as torture and physical force discipline the body, but it is clear that in his view, power is more than just subjection through violence. Its manifestations may also be ‘subtle, calculated, organized, technically thought out’ (Foucault 1977, pp.25-26). Disciplinary power produces human subjectivity: ‘It is produced permanently, around, on, within the body by the functioning of a power that is exercised on those punished – and, in a more general way, on those one supervises, trains and corrects’ (Foucault 1977, p.29).

According to Foucault it is precisely the relationship of power that constitutes the subject. This is what he calls ‘subjection’. In contrast to a traditional view that associates subjection with domination and subjugation, subjection is the complex interrelationship between the hold that power has on bodies and the power that bodies exercise themselves. This interrelationship produces subjectivity, and it may involve domination but not always.

Bearing in mind that as subjects we all inevitably exercise power, disciplinary power does not simply act upon bodies in a static, one-directional manner. The subjects of power have recourse to negotiate this power, because of its relational, capillary nature. Of bodies, Foucault states that power ‘invests
them, is transmitted by them and through them; it exerts pressure upon them, just as they themselves, in their struggle against it, resist the grip it has on them’ (Foucault 1977, p.27). Therefore, bodies not only exercise power, they also resist its ability to subject them. Foucault conceives of resistance as power’s inverse, a kind of mirror image. Power implies resistance, and resistance, like power, is everywhere. Resistance takes many varying forms, each instance unique, and can be enacted through linked groups, individuals or through institutions. Resistance is not simply a negative relation of refusal, though refusal is one of the forms resistance may take. In fact our resistance to power constitutes us as subjects as surely as we are in turn constituted by the exercise of power (Foucault 1978, pp.95-96).

At this point, it is pertinent to ask, if resistance functions in the same way that power does, what distinguishes it from power? By what mechanisms is enablement possible when subjects are constrained in the same moment that they are produced? In a feminist framework, such a question is crucial. If women are to resist patriarchal power, and if women sound engineers are to resist the sexist power relations that marginalise them in the field, then how are we to know what distinguishes patriarchal power from feminist resistance? What makes some manifestations of power politically objectionable and therefore problematic for women? When is power positive for women? Foucault was reluctant to provide a normative framework for distinguishing between different kinds of power. Because of this, his work has been criticised by a number of feminist theorists (for example, Fraser 1989; Allen 1999, 2008). This, as Allen points out, is not an insurmountable oversight, as feminists may insert their own normative frameworks into a Foucauldian take on power – providing, of course, that the normative framework, reliant on notions of justice and equality, is understood in historical context (Allen 1999, p.57).
More difficult to reconcile with feminist theory is that Foucault’s account of subjectivity lacks an explanation of how agency is enacted despite the conditions of subjection. Foucault did not fully elaborate a genealogy of resistance to the same extent that he did for power, leaving unexamined how it functions and what forms it takes (Allen 1999, p.54). Related to this lacuna is what Allen calls the ‘problem of agency’ in Foucault’s concept of power. For Foucault, constraint and enablement are inextricable – one is the condition of the other and vice versa (Allen 1999, pp.36-37). Unfortunately, this observation provides no insight into the nature of their interrelation. It almost appears as though they are one and the same. This leads some theorists to consider what distinguishes them from each other and what mediates between them (Allen 1999, p.56).

While I acknowledge the similarity of power and resistance, Foucault does not effectively demarcate the two concepts. Indistinguishable as they are in Foucauldian terms, it becomes difficult to see the value of ‘resistance’ if it might be interpreted from another vantage point simply as another instance of subjection. Resistance may be a form of power, but if one is to provide a successful analysis of the subjugation of women in patriarchal society, we also need to know how it comes to pass that women can resist despite subjection. It is not enough to imply that they just do because they, like everyone else, have the capacity to exercise power.

Contemporaneous with second-wave feminism, Foucault was also mobilising his views on power in conjunction with an astute critique of objectivist epistemologies. In section 2.2. I elucidated the feminist critique of traditional Western thought’s reliance on fallacious notions of objectivity: it is an area in which feminism and Foucault share common ground. Both feminists and
Foucault have demonstrated an awareness of the political construction of knowledge and its implication in power relations: this is perhaps one of the reasons why feminist theorists have found his analytic of power and knowledge persuasive. For Foucault there is no knowledge outside of power. Instead he emphasises the multiplicity of knowledge and truth. This is not to imply that there is no such thing as knowledge, simply that knowledge as it has traditionally been conceived, that is, as objective truth, does not exist. For him, ‘power produces knowledge… . [P]ower and knowledge directly imply one another; there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations’ (Foucault 1977, p.27). Both power and knowledge ‘subject’ bodies, that is, objectify them by making them objects of knowledge (Foucault 1977, p.28).

Later, in section 3.4.1., I demonstrate that disciplinary power operates in the production of popular music, constraining sound engineers’ professional activities while at the same time rendering them efficient and productive. Professional sound engineers in turn exercise power, in that they contribute to sound engineering as a discursive field, sometimes in ways that ensure that women sound engineers are marginal in the music industry. Women sound engineers are subject to the norms circulated and perpetuated by sound engineers, musicians, and producers in the music industry. Such norms suggest there is a specific kind of subject thought to be most apt for sound engineering, and that subject is male. Nonetheless, women can be sound engineers, and this suggests that the circulation of disciplinary power and discourses that constrain their potential within popular music production are limited in efficacy. A feminist framework that considers the manifestations of gender and power in the popular music industry would be most convincing if it incorporated a broad view of power that encompassed both subjection and
resistance. As I mentioned earlier, Foucault’s understanding of resistance renders it almost indistinguishable from power. I turn to the work of Judith Butler (1990, 1991, 1993), as she convincingly stops these academic gaps with the concepts of performativity and citationality. Butler’s work illuminates in a distinctively feminist way what forms women’s resistance to male domination may take, and thus is indispensable for my examination of gendered relations of power within sound engineering.

### 3.3.2 Judith Butler and the Performativity of Gender

Gender is performative in the sense that its invocation, its expression is its very constitution: the performance of gender brings into being that which it expresses. Every performance of femininity or masculinity brings the subject into being, makes ‘him’ or ‘her’ intelligible as human. In other words, the gendered subject does not exist prior to discourse, but is produced in and through a series of gendered norms (Butler 1990, p.173). Butler’s theory is a radical destabilisation of the sex/gender distinction upon which much feminist theorising is founded: if there is no intelligible subject outside of discourse, then sex is in every way as socially constructed as gender. In this sense Butler shows that the very concept of sex itself is not only gendered but is gender. We understand ourselves and other people as subjects through our discursive production as sexed. Sex is understood to be fixed and stable in much feminist theory, but when it is shown to be normatively and discursively produced - to be gender - then we can no longer presume its stability. As gender, sex becomes mutable: culturally, socially, historically, discursively malleable. This is an appealing reconfiguration of the notion of the sexed body for many feminists, who have long been concerned with the social construction of womanhood as femininity. By rupturing the commonly held view that gender characteristics map neatly onto a pre-discursively sexed body, Butler’s theory allows for the fact that bodies themselves are
discursively produced and therefore that our understandings of bodies are subject to change. If the notion of the sexed body shifts alongside historical, socio-political and cultural processes, then there is hope that a feminist intervention into discourse can alter oppressive and sexist conceptualisations of the female body.

We might wonder, if sex is gender and is therefore discursively produced, if we as subjects are constituted through the normalisation of gender (or in Foucauldian terms, subjected) then how is it that gender is negotiated, contested and revised at all? Amy Allen makes this point in her rigorous critique of Foucault:

> On the one hand, if we are always subjects in the sense of being subjected to a myriad of power relations, then what seems to be implied is a rather deterministic account of human action that denies the possibility of human agency; on the other hand, if we are always subjects in the sense of having the capacity to act, then the implication seems to be a rather voluntaristic account of human action that denies the grip that power relations have on us. Simply combining these two radically different conceptions implies that the best we can do is to learn to live with this paradox (Allen 1999, p.56).

In other words, a convincing account of human subjection and agency, and therefore of our normalisation and our capacity to negotiate our normalisation as gendered subjects, must explain the mechanisms that produce enablement despite gender constraints. With reference to the citational performative function of gender, Judith Butler does just this.

Butler argues that drag can help us to understand the way gender is produced and maintained. Drag is commonly understood to be the act of masquerading as a gender different to one’s own, the act of imitating an original primary gender. However, there is no subject that pre-exists gendering, therefore we can conclude that there is no original ‘sex’ that drag is imitating. This is not to
suggest that drag is not imitative, but rather to propose the idea that a ‘faithful’ expression of sex, one in which gender and sex are deemed to be in concert, is itself an imitation. Such an expression must in itself also be imitative in a very similar way to drag. Or, as Butler claims,

Drag constitutes the mundane way in which genders are appropriated, theatricalized, worn, and done; it implies that all gendering is a kind of impersonation and approximation. If this is true, it seems, there is not original or primary gender that drag imitates, but gender is a kind of imitation for which there is no original; in fact, it is a kind of imitation that produces the very notion of the original as an effect and consequence of the imitation itself (Butler 1991, p.21) (emphasis in original).

We are produced as subjects through gender, but in each expression of gendered subjectivity, we are also producing the notion of an original sex. In drag, the illusion of the originality of gender is latent in and through the act of imitation because drag makes itself known as nothing else but imitation. These practices of imitation have the potential to bring us to question the very idea of a truth or essence of gender. Original gender might then be exposed as a fantasy, an ideal which is imitated in every instance of gender display. To reword Butler, ‘Precisely because it is bound to fail, and yet endeavours to succeed, the project of [gender identity] is propelled into an endless repetition of itself’ (Butler 1991, p.21). The expression of gender identity fails to embody the ideal that it imitates: the fact that gender must constantly and consistently be deployed is evidence of this failure.

Every instance of gender, as an imitation of an ideal, may also be said to be a citation of that ideal or norm. In this sense, performativity cannot be said to be singular, it is always multiple because its existence as a reference depends on repetition. ‘In other words, the norm of sex takes hold to the extent that it is ‘cited’ as such a norm, but it also derives its power through the citations that it compels’ (Butler 1993, p.13). This point, according to Amy Allen, is what makes Butler’s theory of power a useful supplement to Foucault’s. Foucault
offers no theorisation of what mediates between agency and subjection, leaving his theory of simultaneously enabling constraint and constraining enablement open to the critique that it appears as though they are one, lacking distinction or a mediating mechanism. The notion of citationality performs this task: gender is performed, and the gender ideal is cited. The ideal gains further impetus from the citation, which already has the weight of innumerable citations behind it, and this encourages the future performance of gender in a similar manner, through the citation of the gender norm. But citations are not singular – they are varied because they are merely interpretations or representations. Each citation of a gender norm or ideal is distinct from other citations and distinct from the ideal such that its deployment inevitably calls the ideal into question, and exposes the contingency of gender more broadly. The incitement to repetition that the gender ideal encourages is the cause of the very failure of that ideal to ever fully and finally ring true: if gender were self-evident, what need would there be for further citations? This theory is, I show, useful for articulating the examples of women sound engineers who cite gender norms but redeploy them in challenging, resistant ways.

A Butlerian, and for that matter, Foucauldian account of agency and resistance can only bring us to a partial understanding of gendered subjectivity in music production. Their work gives clear indicators of how human relations precipitate subjugation, and Butler in particular illuminates our capacity as individuals to act incongruously with gender norms. But neither advance an explanation for how the stabilisation of gendered power relations might be overturned. This is because they do not consider the full range of power’s manifestations, falling short of an account of human subjects’ ability to act in concert with one another. This is where it is advantageous to critically explore the work of Hannah Arendt.
I have already discussed the concepts of power manifest in the work of Michel Foucault (1977, 1978) and Judith Butler (1990, 1991, 1993). I demonstrated their value as well as their shortcomings for feminist theory, and suggested that concepts of normalisation and performativity can be used to illuminate the dynamics of power and gender in the music production work of sound engineers. Neither Foucault nor Butler afford useful accounts of collective power, and because of this their work is of limited utility for feminist research. Feminist research entails an overtly political dimension that seeks to unveil structures which contribute to women’s subordination so that these very structures can be contested and reconfigured in gender egalitarian ways. This project requires collective action, and feminist theory therefore requires an account of how collective action is possible. Hannah Arendt’s (1958, 1970) political philosophy provides just such an account of collaborative power that can enrich feminist theory, as it advocates an understanding of collectivity that eschews the essentialist notions of identity that have tarnished earlier feminist theorising.

At first encounter, it may appear as though Hannah Arendt’s philosophical position is inconsistent with those of Foucault and Butler to be used in conjunction with them. Amy Allen effectively counters such arguments by meticulously drawing out their similarities and differences, showing that the differences are overplayed and far from irreconcilable, and that the three theorists complement each other philosophically. The principal differences between Foucault and Butler on the one hand and Arendt on the other are twofold: Arendt draws a sharp distinction between the public and private domains of existence which Foucault and Butler question; and Arendt’s work
is founded on a normative framework that Foucault and Butler attempt, not altogether successfully, to eschew (Allen 1999, pp.93-95).

Arendt’s dichotomy between the public and private spheres of life is of concern to feminist researchers given feminism’s insight that ‘the personal is political’ and its preoccupation with deconstructing this very distinction on the grounds that it devalues, distorts and subordinates women’s interests to those of men. Under a dichotomous opposition between the public and private spheres, men have traditionally been associated with the public sphere and women with the private in the service of patriarchal society. Likewise, I reject this distinction for similar reasons. Section 5.6. of this thesis demonstrates that gendered discrimination in sound engineering, far from being a personal problem between individuals, is systematic. In New Zealand and many other Western nations, most employment in the public sphere depends upon unpaid, undervalued work in the domestic sphere (childcare, housework) to function efficiently, and women by and large carry out such work. This is as true in the music industry as anywhere, and sound engineering is notoriously incompatible with the work of tending to home and raising a family. This is one of the reasons why it is seldom an attractive career choice for women. In this regard, any pointed distinction between public and private domains is flawed insofar as the two domains are inextricably interrelated.

Allen proposes that reading Arendt’s philosophy in a very particular way can mitigate this problem. Essentially, Arendt laments the ‘rise of the social’ which is brought about when private concerns are made public and therefore politicised (Arendt 1958, p.40). However, the ‘metaphysical baggage’ can be removed from her work if one reads Arendt as aligning private concerns with self-interest (Allen 1999, pp.95-96). It would appear that Arendt is more
comfortable with private concerns being brought into the public sphere and politicised if they are framed as ‘issues of justice and the common interest’ (Allen 1999, p.96). In other words, feminist politics centred on gender inequality associated with home, the family, the body and sexuality can be accommodated under an Arendtian framework if these so-called ‘private’ concerns can be shown to be issues of justice and the common interest, which they demonstrably can. Therefore this problem in Arendt’s theory can be overcome.

Another way in which Arendt can be deemed as mismatched with Foucault and Butler is her tendency to draw normative conclusions (as her dismay at the ‘rise of the social’ indicates). But this is a theoretical area where her work is congruent with feminist theory, which ideally presupposes a normative framework. It is, for this reason, attractive to deploy Arendt’s work in conjunction with Butler and Foucault, because the latters’ attempts to expel normative judgements from their respective theories renders their value for feminist research questionable. As Allen argues, the differences between their theories can be deemed as complementary to each other (1999, p.93).

Ultimately, the three theorists have enough in common that the notion they are incompatible is moot. Allen has carefully outlined their similarities as follows: they all challenge the idea of linear historical progress, instead emphasising history’s ruptures and discontinuities; they undermine humanist and essentialist concepts of subjectivity; and they are critical of simplistic notions of power that conflate it with command – obedience dynamics, preferring to emphasise its normalising and relational aspects. There are also parallels between Butler’s characterisation of the subject as constituted in and through the performance of gender, and Arendt’s theory that subjects are constructed through their actions in the public sphere (Allen, 1999 pp.90-93).
Arendt’s theory of power is thus suitable for application to the research of gender, power and sound engineering, especially where she views power as a relationship, and subjects as distinct and constructed.

I now outline Arendt’s theory of power as distinguished from violence, strength, and authority. Power as ‘acting in concert’ is a valuable idea for feminist theory because it accounts for political solidarity. Her view of power presupposes a non-essentialised subject, and this is crucial for feminists who wish to counter the critique that feminism is predicated upon the false notion of shared identity. Later, in section 3.4.4., I draw on interviews, using respondents’ stories to illustrate instances where this kind of collective power is already being exercised in sound engineering through mentoring relationships. However, I argue that to overturn women’s marginalisation in musical production requires collective power to be enacted on a much larger scale.

Power, Arendt claims, is not to be confused with violence, authority or strength (1970, p.4). Violence is the use of implements to forcibly achieve an end; strength is a property of an individual that can be deployed for the fulfilment of an end; and authority is that which can be vested in an individual or a group, ‘its hallmark is unquestioning recognition by those who are asked to obey; neither coercion nor persuasion is needed’ (Arendt 1970, pp.42-46). In contrast, power is not marked by reliance on any particular possession or personal characteristic – it comes into being when individuals act in collaboration. As Arendt succinctly defines it:

Power responds to the human ability not just to act but to act in concert. Power is never the property of an individual; it belongs to a group and remains in existence only so long as the group keeps together. When we say of somebody that he [sic] is ‘in power’ we actually refer to his [sic] being empowered by a certain number of
people to act in their name. The moment the group, from which the power originated to begin with ... disappears, 'his [sic] power' also vanishes (Arendt 1970, p.44). Power then derives from the collective interests and efforts of at least two people. It ‘is never possible in isolation’ (Arendt 1958, p.188) but is defined by its relational dimension, in other words, mutual participation.

Power ... derives its legitimacy from the initial getting together rather than from any action that may follow. Legitimacy, when challenged, bases itself on an appeal to the past, while justification relates to an end that lies in the future. Violence can be justifiable, but it will never be legitimate (Arendt 1970, p.52).

In complete contrast to violence, power is legitimate, and its legitimacy originates from this collective basis.

Individuals who come together to act, however, cannot be defined by any intrinsic shared quality. In fact, Arendt claims that there would be no need to act, no need for politics, if everybody were exactly the same. Humans are only ‘the same, that is, human, in such a way that nobody is ever the same as anyone else who ever lived, lives or will live’ (Arendt 1958, p.8). Action and the related capacity of speech depend on human plurality. Humans are equal to each other, otherwise ‘they could neither understand each other or those who came before them nor plan for the future and foresee the needs of those who will come after them’. But we are all distinct from each other, if not then to make ourselves understood and achieve our goals speech and action would be redundant (Arendt 1958, pp.175-176). Arendt encapsulates sameness and difference, showing that they are not mutually exclusive but mutually dependent and coexisting in all of humanity. She avoids the twin pitfalls of essentialism at one extreme and radical difference at the other.

Returning for a moment to the problem of essentialism in feminist theory, Amy Allen argues that Judith Butler’s anti-essentialist stance is so radical as to undermine any efforts at feminist collective action (Allen 1999, p.104; refer
section 2.3.2. of this thesis on ‘strategic provisionality’). I disagree on this point, because Butler’s ‘strategic provisionality’ provides a conceptual means by which collective action may take place without endorsing essentialism. I do agree, however, that Butler does not elaborate on a framework for collective political action in any depth. This is where ‘acting in concert’ is a useful supplement to Butler’s theory: Arendt describes a clear and practicable philosophical solution to the problem of identity politics without essentialism, one that includes and welcomes a wider section of a community than simply the identity group under attack.

What holds a group together when they act in concert is not an essential characteristic that all in the group share, but agreements and covenants, or what Arendt calls ‘promises’ (1958, p.237). The effects of action may be unpredictable and irreversible (Arendt 1958, p.237), but agreements, as Allen says quite poetically, are ‘islands of certainty in a sea of uncertainty’ (Allen 1999, p.102).

On the subject of identity politics, Hannah Arendt was very vocal particularly with regard to the persecution of Jews in Europe during the Nazi regime preceding and during World War II. Even thought she had little to say about gender subordination, and had a tendency to make unflattering generalisations about black student activism in the late 1960s, her insights about identity politics can nonetheless be critically recuperated for deployment in gender studies, and in this instance, gender studies of popular music production. She gives hints as to what an ideal non-essentialist collective action would look like. Allen’s work makes these hints explicit, showing firstly that Arendt believed that one should resist subordination ‘only in terms of the identity under attack’, rather than drawing on humanist concepts to emphasise one’s commonality with detractors (Arendt 1968, p.18
in Allen 1999, p.106). To affirm oneself as a member of a suppressed identity category does more to resist that suppression than denying it or affirming one’s membership of a different category over and above others. One need not be seen as actually belonging to the subjugated identity to claim that identity. After all, not being Jewish did not prevent the Danish King and government from openly challenging the persecution of Jews during World War II. Arendt explains in *Eichmann in Jerusalem*:

> When the Germans approached them rather cautiously about introducing the yellow badge, they were simply told that the King himself would be the first to wear it, and the Danish government officials were careful to point out that anti-Jewish measures of any sort would cause their own immediate resignation (1963, p.154).

Later on, Danish dockworkers preferred to strike than to repair German boats, and the Nazis were met with open resistance when they tried to seize the Jews to send them to concentration camps (Arendt 1963, pp.155-156). Nazis found themselves prevented from breaking into Jewish people’s apartments, and, what’s more, the Danish government had leaked the news of the impending captures to Jewish leaders already, giving them time to inform their communities and hide (Arendt 1963, p.156). ‘All sections of the Danish people, from the King down to simple citizens were ready to receive them’ (Arendt 1963, p.156). When Sweden offered asylum to Jewish refugees, wealthy Danish citizens settled the transportation bill for those Jews who wished to flee there (Arendt 1963, p.156). This story indicates the effectiveness of resistance that arises when people act in concert, regardless of the identity category they belong to. It could certainly be applied to a situation of men and women acting together to overcome instances of female subordination, such as in the popular music industry, as I will demonstrate in section 3.4.4.12

12 Certainly I do not wish to suggest, as it may appear, that the subordination of women in the popular music industry is in any way similar or equivalent to the persecution and genocide of European Jews in Germany-occupied European countries under the Nazi regime. I am merely drawing on Arendt’s example of cross-ethnic solidarity as it illustrates in a very concrete way her concept of collective solidarity, without relying on an essentialised concept of identity. It is the notion of power as
Arendt emphasises that its effectiveness stemmed from its political rather than its humanitarian basis: it ‘was the result of [the Danes’] authentically political sense, an inbred comprehension of the requirements and responsibilities of citizenship and independence’ (Arendt 1963, p.161). I would argue that political and humanitarian concerns are inextricable, nonetheless, Arendt makes a startlingly original and convincing argument for the efficacy of acting in concert.

Similarly, Jacques Attali (1985) emphasises the autonomous individual as part of a responsible musical collective. His theory is expressly concerned with overcoming relations of power that alienate the majority of people from the production processes of music. This communal spirit puts his theory in line with Hannah Arendt’s notion of solidarity, which I will argue is one of the paramount conditions for women sound engineers’ advancement. Despite the limitations of his work, particularly his inattention to identity politics and his latent technological determinism, an ‘age of composition’ where individuals collectively collaborate toward a freer more diverse range of musical aesthetics continues to be an appealing utopia.

3.4 Gendered Power in the Domain of Sound Engineering

3.4.1 Sound Engineering as Disciplinary Practice

I contend that disciplinary power subjects and constrains sound engineers in their professional activities while at the same time rendering them efficient and productive. Professional sound engineers in turn exercise power, in that they contribute to sound engineering as a discursive field, sometimes in ways that ensure that women sound engineers are marginal in the music industry. Women sound engineers are subject to the norms circulated and perpetuated unessentialised collective solidarity that is pertinent here, and readily applicable to the case of women in sound engineering.
by sound engineers, musicians, and producers in the music industry. These
norms suggest there is a specific kind of subject thought to be most apt for
sound engineering, and that subject is male.

In sound engineering, relations of power are located between the sound
engineer and the client. In live event production, the client is the musician or
musicians. In recording engineering, the client may be the producer, who
mediates between the musician/s and the sound engineer. Sometimes,
however, the musician or band may act as producer or co-producer, and there
are cases where there is no formally employed producer, in which case the
sound engineer will sometimes take on the producer role for the musician or
band. The sound engineer, in all instances, depends on the client for
employment and income, and this factor influences the negotiation of power
between sound engineer and client. The sound engineer is performing a
service role, and clients can tacitly enforce the norms of practice to which a
sound engineer must conform. The norms refer to how the engineer must
personally interact with the client, how quickly and how many hours he or
she must work, and the kind of production aesthetic he or she must adhere to.
Recalling Porcello’s (1996) emphasis on the contextually located nature of
power relations in the recording studio, the precise nature of these norms will
vary between clients and between ‘jobs’. Nonetheless they are norms that
demand an emotional, psychological and physical toll from the sound
engineer, as evidenced in the following example:

William

At one time I was working with a band and I was their engineer and manager and
organising everything, it was great. But everything that happened, if you went away on
tour, from ‘I didn’t like my breakfast’ to ‘I couldn’t hear myself on stage’ or whatever, or
‘I didn’t get paid enough’, they all came back to me (personal communication, 2nd
February, 2006).
The sound engineer in the live performance setting becomes the scapegoat when the musicians are unhappy with their onstage sound. Certainly in the arena of amateur rock music-making, some degree of responsibility lies with the musicians if they are unhappy with their onstage sound. Typically they will have their amplifiers, or even a small portable mixing console, on stage with them and are able to adjust the settings until they find a sound and volume they are happy with. The sound engineer is situated behind the mixing console, which is usually separate from the stage, and can only reasonably be made responsible for the sound that is emitted from the PA speakers. It is difficult for the front-of-house sound engineer to assess the onstage sound and give musicians an adequate mix through the foldback monitors. This is only possible in larger, more professional performance settings with commercially successful musicians who will have access to a ‘monitor engineer’ who is responsible for perfecting the onstage mix. If a band or musician is having difficulty with their onstage sound, and only employ a front-of-house engineer, it is somewhat unfair of them to push responsibility for onstage sound problems onto the front-of-house engineer, as was the case for William. William’s scapegoating was compounded too, by his taking on a managerial role, and he found himself being blamed for almost everything that went wrong for the band.

Recording sessions typically involve long stretches of work that go late into the night. It is not unheard of for an individual session to last up to fourteen or even sixteen hours. The sound engineer is required to be present for the duration of this recording activity. The demands of such an intensive work ethic would inevitably take their toll upon an engineer, with overtiredness and stress resulting. In recording engineering, the producer may be present in the control room where they can hear the work in progress while the engineer is recording or mixing it, and they will usually have input into this process.
Thus the client has ample opportunity to influence the musical aesthetic of a recording. This is different from the situation of the live performance event. During a live performance, the client/s have limited opportunity to examine the music aesthetic because as musicians they are positioned onstage and can only hear the onstage monitor mix, which they can negotiate amongst themselves or with the monitor engineer. The musician usually does not hear the music as the audience does: through the front-of-house speakers. However, there are ways that the client may monitor the front-of-house sound at a live event. For example, he or she may record it or entrust a friend in the audience to give feedback on the mix. If sound-checking at a smaller venue with a low stage, with the aid of an extra long cable a musician may venture off the stage in front of the speakers so they may hear the front-of-house mix. In these ways a client may monitor the musical product and have input into the musical aesthetic that a sound engineer must achieve. This is an example of how the relationship between sound engineers and their clients is subject to surveillance.

However, surveillance in the recording studio and the live event is multi-directional. Porcello refers to an event that took place during his fieldwork in a recording studio that neatly encapsulates the potential for the exercise of power when a producer uses a mixing console as a conduit between him or herself and a musician.

The differential access among producers and engineers and musicians to the means of production – such as mixing consoles and talkback mics – and the power that accrues to knowing how to use them, is performed by [the producer’s] choices of when to let [the bass player in the studio room] hear [a] story and when to let those of us in the control room hear [the bass player’s] responses; and the role of technology in these social relations is performed, literally, through the technologies involved – microphones, mixing consoles, loudspeakers, headphones – being selectively turned on and off by the performer of this story (Porcello 1996, pp.94-95).
This event, as mentioned earlier, demonstrates the interrelationship between discourse and power, and it also suggests to us a particular feature of the recording studio that is in some ways reminiscent of the ‘panopticon’ that Michel Foucault deploys as a metaphor for surveillance in contemporary society (1977). The panopticon is a prison design articulated by Jeremy Bentham where the guard tower is situated central to the prison and individual cells are arranged in a circular formation around the guard tower. The design of the cells and the guard tower are such that the guard can see into every individual prison cell and monitor the actions of each prisoner. In contrast, the guard in the guard tower is not visible to the prisoners from their cells. Because of this, they cannot know exactly when the guard is present in the tower and watching them. It is most expedient to assume the guard is in the guard tower and adjust one’s behaviour accordingly. This adjustment is an example of self-surveillance and produces the ‘docile bodies’ to which Foucault refers, bodies that are self-regulating and compliant with the rules of the prison. Contemporary society encourages similar behaviour from people through the use of surveillance techniques that persuade us to comply with behavioural norms lest we are caught breaking them, to suffer the consequences.

The panopticon is broadened to encompass an audible dimension within the recording studio. In Porcello’s example, the producer in the control room (and for that matter, the sound engineer, who also has unlimited access to the sound equipment) can listen to the musician in the studio at whim. But the musician can only hear the producer and the sound engineer when the talkback microphone in the control room that leads to the speakers in the studio room is switched on. The situation is such that those in the control room are able to monitor the human interactions in the studio room, but those in the studio room have no such authority over the control room. Surveillance
in this situation is aural in nature and unbalanced. Matthew Bannister has coined the term ‘panphonicon’ to refer to this phenomenon, and applies it appropriately to producers and sound engineers, making it explicit that the control room in the recording studio is a locus for the exercise of power (2006b, pp.117-118). It is no accident that the control room is called the control room. The technology of the control room affords sound engineers a means to exercise power and control over the musical process. At the same time they are subject to relations of power and control in the wider music industry, relations that are acknowledged in the design of and buttressed by the very technologies with which they engage. In this way, music technologies are a source of constraint and enablement for sound engineers, irrespective of gender, though the interaction of gender with the variables of power and technology means that such constraints and freedoms manifest in different ways for men and women.

Sound engineers and musicians negotiate the disciplinary power relations they are embroiled in. As the previous two paragraphs demonstrate, sound engineers channel power relations through their access to and expertise with the mixing console. Sound engineers have been known to practice resistance, too, and there are examples of this conduct in Kealy’s thesis including publicly deferring to the client and under-reporting studio time. The sound engineer uses such techniques to curry the client’s favour and thereby negotiate for fair working hours, conditions and aesthetic input. The sound engineer may also refuse to work altogether; sabotage the sound purposefully; deliver a mix that emphasises his or her own musical aesthetic rather than that of the client; or refuse to defer to the client.

While these means of resistance are available for the sound engineer, he or she must deploy them carefully. In a market where numerous skilled sound
engineers compete for work, resistant engineers may lose clients, who can look elsewhere for a more compliant sound engineer. Certainly, due in some part to the proliferation of digital recording software, there is an overabundance of sound engineers wishing to ‘supply’ their skills to meet the demand of the remaining minority of demanding professional clients. Clients may also influence the sound engineer’s business in other ways. Word of mouth reports from clients on the behaviour and capability of a sound engineer can damage or enhance his or her reputation. In these ways, the sound engineer may resist the disciplinary power that they are subjected to, but there are clear incentives to co-operate with clients and uphold the disciplinary practices.

William

I’ll tell you a funny story about a local engineer with a band in the studio, cos they were recording at my studio. The engineer spent the afternoon mixing this song and the band came in in the evening to have a listen to the mix. They said, we think the guitar should go up, and you get a discussion going about what happens if you put the guitar up. You put the guitar up a bit, and actually what you’re having to do is educate the musicians. So the guitar went up a bit, and the engineer explains that if you put the guitar up then it will mask something else. So you have to alter a few things as well. They say ‘No we want the guitar up a bit’, so up goes the guitar, and then the vocals had to come up a bit, then once the vocals were up a bit with the guitar then the drums were a bit quiet, so they had to come up a bit and so of course all the master gain had to come back and you had to readjust everything. About five or six hours later they arrived back at exactly the same sound that they had started the evening with. That’s a really patient engineer, to sit there and talk the band through what’s going on, but that’s five hours worth of stuff (personal communication, 2nd February, 2006).

William describes the delicacy of the relationship between a sound engineer and a band. Constrained by the service aspect of his profession, this engineer had to acquiesce to the band’s wishes for the guitar to be louder in the mix. But the engineer, informed by his technical expertise, knows that to make the guitar more prominent in the mix will upset the balance of the other
instruments. He could not simply over-ride the musicians’ demands but had to painstakingly take them through the process in which a louder guitar undermines the overall mix. Eventually, his technical expertise won the musicians over, and after five hours of mixing, they defer to him. This shows that power, as Foucault and Porcello make clear, is open to negotiation. But we must also read this anecdote in light of the context of demand and supply. The oversupply of sound engineers who compete to work with professional clients leads to a situation where power is undeniably weighted in favour of the client.

The sound engineer is not beholden to the client in all circumstances. But there are situations in which the sound engineer has a greater capacity to exercise power than the client. This can happen when a financially struggling band with no reputation records in a studio with a sound engineer. In this case, the band or musician have no producer to shape their sound or to negotiate with the sound engineer. They might not have a record label to finance a producer for them or cannot afford to hire a producer themselves. It is likely in this event that they would pay for studio time with personal finances or a grant. When this happens, the sound engineer will often take on the role of producer as well as sound engineer and may exert a large degree of influence over the musical product. He or she is in a superior position financially because he or she can hire their services and/or studio to the clients for a set fee. Their work and their earnings will in this case be more regular and stable than the clients’ earnings. They set the fees that underground bands may struggle to meet. The sound engineer-cum-producer has specialist technical knowledge which influences the way he or she exercises power. The sound engineer knows how the equipment works and how to get the ‘best’ sound from it, and as producer he or she will try to shape the musical product to make it ideal for popular consumption. Clients generally accept that the
sound engineer-cum-producer has access to privileged knowledge regarding the placement of microphones around instruments; the operation of the console and recording equipment; and recording and mixing the music. The sound engineer knows how to use sound technology effectively to make a musical product that will potentially interest music fans.

There are opportunities for creative differences to emerge and for clients to resist if they disagree with how the music is recorded or the dislike the engineer’s musical aesthetic. However, when the client/s have spent a lot of money on the recording they may not be able to afford to take their business elsewhere. They may have to see the recording through despite disliking it, or they may see fit to give up on the project. Either way, the sound engineer-cum-producer will still be remunerated.

Sound engineers are not always employed in a professional recording studio or a PA company. In some cases, sound engineers are primarily musicians, and their main creative focus is creating their own music and self-producing it. Such musicians typically establish a home studio, with a computer equipped with appropriate software or, less commonly today, with a four-track cassette recorder. This way, he or she can create his or her own music by writing it, recording it, mixing it and producing it, guaranteeing him/herself full creative control. Sound engineering as a do-it-yourself practice enables the musician-cum-sound engineer to maintain autonomy and artistic license in the creation of music. Both men and women practice do-it-yourself sound engineering. However, it has a special significance for women sound engineers. I shall elucidate this significance later in section 3.4.3.
3.4.2 Discourses of Sexual Difference

Sound engineers exert power over their occupation through gate-keeping practices. They do this by controlling the learning process of becoming a sound engineer. Particularly if they have their own sound company or recording studio, they provide training and employment opportunities for aspiring sound engineers, thus they have a large degree of influence in deciding what kind of person becomes a sound engineer, and who becomes a successful sound engineer. Alongside producers, musicians, audiences and other interested parties in the music industry, they establish, negotiate and circulate discourses about sound engineering. Knowledge of the occupation is thoroughly situated within and helps to uphold power relations. One such power relation is the near-absolute exclusion of women from paid employment in sound engineering and their marginalisation into amateur roles. 2006 Census figures for women’s and men’s employment in sound engineering and other musical occupations discussed in section 5.4. show the extent of the gender discrepancy.

My interviews confirm that sound engineers refer to several discourses of sexual difference. Both men and women sound engineers refer to, and negotiate, discourses of sexual difference to explain women’s near absence from sound engineering. Women sound engineers are not uniform in their responses to such discourses. They may refute them, or they may accept them completely, or accept them insofar as seeing themselves as exceptions to the ‘rules’. Not all male sound engineers accept the prevalent discourses in totality. Some challenge them and, along with women, may even offer ‘reverse discourses’ which are more positive and encouraging for aspiring women sound engineers. However, reverse discourses of sexual difference rely on gender essentialism, just as the prevalent discourses do, and so they
are equally problematic. They simply do not encapsulate the variety of women’s and men’s experiences in sound engineering.

There are reports of male sound engineers using discourses of sexual difference to discourage women from becoming sound engineers and to denigrate their work. Erica, a woman who engineers live sound, reported on the attitudes she was confronted with when she began engineering in the late 1980s.

It [being a woman] was a very big issue. You’ve got to work five times as hard to prove to be half as good as a bloke. And [the guys thought] ‘women are dumb, it’s logic, there’s no way a woman would be able to figure out how to put a PA system together’. I’ve had instances of sound guys standing over me at the desk and telling me I was fucking it up and it was all wrong, and ‘You don’t do it like this’, blah blah blah, and it sounded fine to me. I just wasn’t doing it like they did it (personal communication, 2nd July, 2005).

A common discourse of sexual difference is expressed here, that women are unsuited to technical roles because they are incapable of grasping logical thought. Erica’s response to the sexist discourse was to challenge it on a personal, individual level: in persisting with her job despite the hostility, she existed as proof that the discourse was wrong.

Erica accepted other discourses of sexual difference, showing that she doesn’t respond in the same way to all of them. When asked why so few women become sound engineers, she explained that the work is hard:

It’s really, really hard yakka. A lot of it is heavy lifting. You’re constantly moving around heavy speakers and amps. The hours, the touring side of things, sleeping on people’s floors... It’s difficult whether you’re a man or a woman to get into the industry... So if any woman’s tough enough to get through what it is to be a roady, then she’ll be accepted along with all the rest of the guys... I think you’ve got to be a certain breed to be able to hack it, whether male or female. You get dirty all the time, and women don’t like being dirty (personal communication, 2nd July, 2005).
This time Erica explains women’s lack of presence in sound engineering in terms of one of the traditional routes into live sound engineering, roadying. For her, roadying is hard work and her implication is that women enjoy heavy lifting, long hours, sleeping on floors and getting dirty less than men do. She accepted and endorsed this discourse while seeing herself as an exception to the rule, able to rough it with the men, though this was a double-edged sword.

You become one of the boys. Guys will accept you as one of theirs when you get into that work for a while. You basically compromise your femininity a wee bit when you’re doing that kind of thing (personal communication, 2nd July, 2005).

For her, being treated as an equal meant being treated as a male, a role that she found somewhat uncomfortable.

Erica exemplifies the notion of gender as a performance as outlined earlier with reference to Butler (1990). In order to be accepted as a sound engineer in this male-dominated milieu, she performs masculinity, taking on its technical challenges and demonstrating her physical strength, her toughness, and her lack of concern over rough living. It might be argued that she, in doing so, is disrupting the traditional equation of masculinity with having a male body. However, her sound engineering peers do not accept her as masculine and this is evident when they question her ability to manipulate technology in the live setting. Her performance of masculinity is not read as successful as it appears to be over-ridden by her female body, the signifier of her femininity. Erica claims that she is accepted as one of the boys, but she is not altogether convincing. In addition, Erica’s adoption of masculine behavioural signifiers comes at a personal cost, in that she feels she has compromised her femininity. According to the discourse of sexual difference, a sound engineer is defined not only by masculinity, but by maleness and by the absence of all female and feminine signifiers. This suggests much to us about the meaning
of masculinity and maleness: they signify in relation to femininity and femaleness. Masculinity and femininity, maleness and femaleness are conceived of as opposites, and are incomprehensible when residing within a singular individual. In Erica’s case, her femaleness cancels out her masculine performance. It would appear then that aspiring female sound engineers are in a very dubious position in their vocation: in order to be accepted they are required to repudiate their femininity, but even so they are still read as female and therefore as not ‘really’ capable of engineering sound.

One male live sound engineer, managing director of a sound company, says that women are in the minority in sound engineering because heavy lifting and ‘macho’ culture would deter women from the job.

The area in which we work does tend to be somewhat ‘macho’ by nature with a great deal of heavy lifting involved… In touring situations females could mean accommodation and toilet worries for a promoter. If a female front-of-house or monitor engineer were to be used she may well end up being the only female included in a gang of sometimes rough-as-guts and arrogant males and this is seldom a healthy scenario. Even if she were a real tomboy, she may still be made to feel very much out of place in what has always been a very male dominated scene… Also I think it is probably more a case of females not wanting to get involved rather than guys not wanting them around. If you saw the size and weight of some of the gear we carry around you would soon understand the situation more clearly (e-mail communication, 5 June 2006).

Jared invokes two striking gendered sound engineering norms in this statement. Firstly, sound engineering is for macho, uncouth, arrogant blokes, simply because they are and always have been predominant in the field. For him, any aspiring woman sound engineer must adjust to this dynamic, and even a supposedly more ‘masculine’ woman would still feel alienated. Machismo, for Jared, is a specifically male characteristic, and rather than arguing that sound engineering change to accommodate gentler, supposedly feminine ways of being, he argues that women must adjust to his view of
maleness. This is all the more evident when he states that promoters might see women as a ‘toilet worry’, as though it would be difficult for them to ensure that any women on the crew would have access to their own separate bathroom facilities and accommodation.

Secondly, Jared reasons that women are absent from sound engineering because sound engineering involves heavy lifting. While he is careful not to argue that women cannot lift heavy equipment, he is nonetheless invoking a gendered norm in assuming that women do not want to perform such tasks. The invocation of a discourse of choice is a deft manoeuvre many men employ to account for the gender disparity in sound engineering. It enables men to sidestep blatant sexism and places the onus for women’s scarcity in the occupation onto women. Saying that women seldom become sound engineers because they cannot grasp the technology or because they are incapable of lifting sound equipment, it is widely acknowledged, would be tantamount to sexism. Sexism then is understood singularly as the expression of belief that one gender is superior in an activity over another. But making women’s absence from sound engineering a matter of women’s personal choice performs a rhetorical sleight-of-hand. It is an effective way for men to avoid taking responsibility for excluding women, even though men are overwhelmingly the gate-keepers of the occupation, a fact conveniently omitted from the discourse of choice. Women are attributed blame for their own marginalisation from popular music production, a situation over which they have little influence. The discourse of choice suggests that all of the barriers women must contend with if they are to become sound engineers are of no consequence: it overlooks the constraints that exist that prevent women’s choices from truly being free. It allows men to uphold practices of sexism within the occupation while evading charges of sexism, and it commonly surfaced amongst the sound engineers I interviewed. In this case,
Jared admitted that he did not know any women sound engineers. His sleight-of-hand is even more cunning: he claims to know that women do not want to lift heavy equipment in the same moment that his eyes are closed to their existence as sound engineers, a concession that would undermine his belief.

A number of male respondents proposed that women would not want to perform the heavy lifting tasks that can be part of a live sound job. Women’s responses, however, were generally more tentative. Heavy lifting, it was often suggested, might deter some women, but not all women. There are techniques to moving sound equipment that can make the job easier; some women are as big and strong as some men; equipment is more often designed to be lighter or is equipped with wheels today; and hard physical work is a deterrent for men too, they reasoned. Some of their male counterparts concurred.

Tania preferred not to lift heavy items and it contributed to her personal preference for recording over live sound.

I think it’s actually quite hard for females to do live sound, because of the heavy lifting part of it. But if you’re really fit and enjoy weightlifting, I don’t see why not. I think that’s the only reason it singles one out. It’s exhausting. Even with two other people it’s exhausting. So I’d imagine doing it by yourself as a female would be really exhausting. But the other thing is, I have loaded the van almost by myself before and there’s random people in the street who are like, ‘can I help you with anything?’ That’s how it always is in this industry, like it’s unusual, people are always willing to help you. So it’s not a bad thing. There should be more females doing this because there are always people willing to help, there are always people willing to do it. There’s no reason females shouldn’t be doing it (personal communication, 16th May, 2006).

She suggests that heavy lifting could make the job difficult for women, but also recognises that some women are strong and may enjoy the lugging. She
found that people have offered to help her with the heavy items and concludes that heavy lifting would not prevent women from becoming sound engineers.

Janet, former sound engineer for a sound company, told me,

To be a real sound engineer, you have to rig. There’s a lot of physical work involved in that, speaker cabinets are very heavy. They’re not built for women, they’re not built for light lifts... Whilst I was capable of taking half of just about everything, there were a few items that it would have been foolhardy of me to try carrying. I could lift an amp rack out of the truck and straight onto the ground, and if it was a flat roll in, not a problem. But if you had to actually carry stuff from the truck to the venue, forget it (personal communication, 15th December 2005).

While it would appear initially that Janet is arguing that women are at a disadvantage in sound engineering because they cannot lift heavy equipment, she later clarifies that what may have been a restriction for her does not apply to all women:

That [heavy lifting] to me is the only limitation for a woman in this business. It was simply a straight physical one, and that only applies to little people like me. It doesn’t apply to the big strapping girls who can get out there and do it. ... I mean it’s not that you can’t do it, it’s just there’s got to be more numbers, it’s got to be thought about a little more carefully, it’s got to be approached intelligently instead of just rip shit and bust, which guys can get away with because they’ve got the strength to do it (personal communication, 15th December, 2005).

Janet ultimately rejects the common discourse of sexual difference that women cannot become live sound engineers because they cannot lift heavy equipment. For her, gender is a complicating factor in sound engineering but not a reason for exclusion. Small women might be restricted in rigging, but women can rig if they are careful and intelligent about its execution. She accepts the idea that heavy lifting is easier for men.
Some male engineers dispute the discourse that positions men as intrinsically more adept than women at heavy lifting, and therefore more suitable for sound engineering work.

William
Speaker bins are reasonably large. But most clever companies have put wheels on theirs, and it’s all about technique. The actual amount of things you’re lifting are not that heavy really. Once you’ve got the hang of it you’re away. An Eon loudspeaker, it’s about 15 kg and you don’t have to lift two of them at a time and carry them, but even then it’s only thirty kg. Women have been lifting far heavier things for much longer. The rest of it is cables and stands and things like that. As soon as there’s something bigger you get two people to lift it. I never had a bad back the whole time I was doing PA stuff because its all just getting the right technique of lifting and rolling things. If you put heavy things on top of other, even heavier things that have wheels, you stick the non-wheeled things on top of the wheeled things and just roll the whole lot out the door. There’s no lifting involved. I mean I’m not a big guy, I’m 60 something kilograms, and it’s been fine (personal communication, 2nd February, 2006).

And for some women sound engineers, there is absolutely no question of their ability to carry heavy equipment.

Jasmine
So I just jump in there, and so if I do lift a lot of things, I get called like a mean machine or a hulk. So I can’t win, but I can live with that, it’s alright. I hate it though, it’s so patronising. ‘You just sit this one out, we’ll do this’, and I’m like, this is my job, I’ve done this for ten years (personal communication, 13th December, 2005).

Jasmine’s story perfectly underscores the persistence of the discourse of sexual difference. She is exhorted to leave the heavy lifting to men, but she resists the pressure and continues with her job. But when demonstrating her strength and capacity to lift the heavy sound equipment, she is labelled with epithets that suggest heavy lifting is incompatible with femininity anyway.

It is clear that gendered norms operate in live sound engineering, which suggest that women are unsuited to the job. Women are commonly considered incapable of lifting heavy objects, and heavy lifting is considered
the prerequisite for live sound. Some argue that heavy-lifting requirements are sexist in themselves, as did a respondent in Boden Sandstrom’s study: “I think the physical aspect of the ‘load-in’ is particularly sexist, and the equipment itself in design is only now becoming light enough for women to do the job alone” (Sandstrom 2000, p.294). Thus both male and female engineers perpetuate the gendered discourse that women cannot lift heavy equipment. With such norms circulating, it is no wonder that sound companies seldom employ women as sound engineers and roadies. I interviewed only three women who are or have been employed by sound companies. One of them was the co-owner of the company she engineered for.

The mostly male staff at sound companies may simply not want to employ women or may seriously believe that women cannot lift equipment. They justify such practices by insisting women do not want to become sound engineers despite evidence to the contrary. They reinforce this idea by continuing to employ all-male staff, upholding sound engineering as a gender-stratified occupation. The norm effectively circumscribes women’s sound engineering employment opportunities and limits their chances of career advancement. Sound engineering is not an isolated case: Connell (1995) suggests such norms are widespread in many male-dominated occupations requiring heavy physical labour. These findings support her assertion that masculinity is a physical practice, a bodily performance (1995, pp.55-56). The ability to manipulate large, heavy items is part of how men come to understand themselves and their bodies as masculine, and at the same time it reinforces the ideological alignment of physical strength with masculinity from which women are at best discouraged and at worst excluded. Heavy lifting is a physical practice, but it is a social one comprising learned skills such as bending the knees with other techniques. The alignment of
masculinity with physical superiority has serious repercussions for men. By relying on upper body strength alone, because they believe they can do so as men, sound engineers who do not adopt safe lifting techniques risk injury. The case for disrupting the gendered norm has even wider benefits than egalitarianism; it is also in the interests of male sound engineers to learn lifting techniques which women in live sound have already mastered, to ensure personal health and safety. To varying degrees, individual sound engineers accept or reject the social construction of masculinity as physically dominant. But those who reject the conventional view cannot reverse its prevalence insofar as they continue to prove or vouch for women’s physical capabilities on an individual, case by case basis.

Formal live sound engineering work implies an idealised traditional male worker. It is not uncommon for male-dominated blue-collar jobs to have in an entry job a contentious heavy lifting component, which falls away as the worker is promoted to higher ranks (Williams 2000, p.77). The career path of live sound engineering work exemplifies this, as many sound engineers believe the entry-level heavy lifting requirement is if not a bar then a deterrent to women. Once the idealised male worker has progressed to the point where he is mixing the band at the event, he is no longer required to do any heavy lifting, thus women are effectively excluded from mixing live bands in sound company employment, a job they are perfectly capable of doing given the requisite training and experience. There is, in essence, no reason why sound companies must employ men to do the heavy lifting work anyway: there is lifting technology available to make the job easier for men and for women and this would also help prevent the occupational hazard of sciatica and other back complaints. Furthermore, in the absence of lifting equipment, large items could be shared by two or three workers. The heavy
lifting requirement is fundamentally a socially regulatory norm that filters women out of live sound engineering and maintains the job as male territory.

It is interesting to note that reverse discourses of sexual difference are emerging in sound engineering. These discourses emphasise skills that women are thought to bring to sound. Some sound engineers are firm in their belief that women are better listeners than men, and that they therefore have special abilities to offer the sound engineering field. They argue that women are more inclined to listen to clients and more able to interpret their needs and create the kind of recording environment and musical aesthetic the client wants. Furthermore, some even suggest that women can hear and perceive music better than men can, and cite scientific studies that suggest women have a greater range of aural perception than men, that is, they are able to perceive more frequencies than men can. Renee, a female audio engineer who works at an academic institution, believes that women are better listeners than men. Another male audio engineering instructor asserted there is scientific research that suggests women hear better than men.

Jason
When I say better, if one was to take all the hearing tests done, not listening but hearing tests done at audiology clinics around the world and compared males to females, females would definitely come out on top in terms of their aural acuity, their ability to hear and process information aurally. So that’s why I say that women hear better than men, that’s what I meant (personal communication, 4th May, 2006).

I followed up his assertion by contacting local audiology experts, most of whom did not respond. On the single occasion I received a response, it lead me to a study that found that estradiol-binding proteins or ‘estrogen receptors’, typically present in both men and women, helped inhibit hearing-loss (Audiology Online 2008). A search on the internet under ‘women hear better than men’ yielded reference to a study showing men listen with only one side of their brain whereas women listen with both sides (Medscape
and reference to another study reporting that black people hear better than white people because melanin is thought to protect against hearing loss, women better than men in that they are able to perceive higher frequencies at a slightly lower decibel range (Health24 2006). Scientists such as Stephen Jay Gould (1996) and Carol Tavris (1992) have already explained the fallacies of interpreting such studies in a biologically deterministic way, and in any case, none of these articles can be relied upon to prove that one gender has superior attributes required for sound engineering over another gender.

Jason and another audio engineering instructor both stated that they would like to see more women involved in audio engineering because it would make music more representational in terms of gender. Pete claimed that boys tend to create music that is boy-oriented, and likewise girls create music that other girls respond to. More women audio engineers would in his view lead to more women-oriented music in the male-dominated music industry.

Reverse discourses in sound engineering suggest the possibility for women to imagine themselves in the occupation on the basis of their perceived biological superiority at particular tasks, such as listening or audio perception. Feminists must treat such discourses with caution. As Butler warns, the strategic deployment of essentialism is fraught by the potential for the same strategies to be used in unintended ways (1990, p.8). Appeals to biological determinism such as women’s putative superior hearing abilities may indeed constitute an instance of resistance if deployed as an argument for women’s valid and increased presence in sound engineering. But similar arguments have historically been used to justify the circumscription of women’s activities and behaviour. For this reason, it is not politically expedient for feminists to insist on reverse discourses of sexual difference.
In addition Butlerian critique of feminist appeals to biological determinism would assert that it ‘uncritically mimics the strategy of the oppressor instead of offering a different set of terms’ (1990, p.19). I contend that instead of reproducing and perpetuating discourses of sexual difference, a feminist analysis of sound engineering would do better to question these discourses, focusing on how they construct gender in the occupation, as well as noting the instances of gender performance that ‘enact and reveal the performativity of gender itself in a way that destabilizes the naturalized categories of identity’ (Butler 1990, p.177).

As sound engineering is a service occupation, it demands a very particular set of skills often devalued and ignored, even not considered skills at all. These skills are what feminist sociologist Arlie Russell Hochschild refers to as ‘emotional labour’. She defines emotional labour as ‘labour that … requires one to induce or suppress feeling in order to sustain the outward countenance that produces the proper state of mind in others. […], this kind of labour calls for a co-ordination of mind and feeling’ (Hochschild 1983, p.7). It occurs in jobs where the worker is in contact with the public and is required to defer to the customer, or, in the case of the sound engineer, the ‘client’.

The sound engineer must tailor his or her professional practice in order to produce the required feelings, that is, comfort and creative satisfaction in the client. This is an instance of the performance of emotional labour. In addition, they run the risk of contending with the so-called ‘artistic temperament’, which may manifest as disrespect and anger in a dissatisfied client. But the sound engineer does not have access to the same behaviours, instead he or she must maintain the outward appearance of servility and a people-pleasing manner at all times if he or she wishes to maximise employment
opportunities. As Hochschild states, ‘Where the customer is king, unequal exchanges are normal, and from the beginning customer and client assume different rights to feeling and display. The ledger is supposedly evened by a wage’ (Hochschild 1983, pp.85-86).

Thus emotional labour involves a fundamentally imbalanced relationship between the worker and the customer, especially in terms of emotional display. It is also feminised labour. Women more than men are required to perform the set of unrecognised skills known as emotional labour in their paid employment (Hochschild 1983, p.11). Additionally, women’s traditional unpaid parental work (which they continue to perform more than men even today in New Zealand, as we shall see in section 5.3.) enhances their association with emotional labour. It is remarkable that in sound engineering, emotional labour is not associated with femininity at all, as seen in the following quotes.

Brett

There’s the technical ability, the musical understanding and the people skills, and I think probably all three of those things have got to come together to some degree. I know sound engineers with no people skills and they’re wicked sound engineers but they’re only ever going to have a couple of people who want to use them because only a couple of people that’ll be able to put up with that, and that’s fine, they’ve got their niche there. There are also engineers who people will always work with because they’re always really laid back and they feel really comfortable with them, and maybe they don’t record or mix as well as some other people (personal communication, 15th December, 2005).

Ben

Well all of the types of listening make a good sound engineer. Listening to what the musicians want is very important and if you want to be a good sound engineer over a wide range of types of music and situations then you need to listen to what people

13 Hochschild’s suggestion that women are ‘more accomplished managers of feeling in private life’ (1983, p.11) underestimates the extent to which masculinities require feeling-management behaviour.
are attempting to get as far as the sound is concerned. It’s a service industry, you’re a service person, and you’re providing somebody with a service, and understanding what that service is is very important, and understanding what it’s like to be the musician on stage and what they need (personal communication, 19th December, 2005).

It would seem that in order to maintain sound engineering as a male-dominated occupation, a set of reverse discourses regarding the feminisation of emotional labour must be rejected. Ignoring the gender connotations of emotional labour has two consequences for male sound engineers: the risk of the feminisation of sound engineering as an occupation is reduced; and on a personal level, sound engineers may continue to assert themselves as masculine subjects. The discourses of sexual difference that exclude women from sound engineering remain unchallenged and are given license to persist.

The field of sound engineering is thoroughly infused with power relations. Sound engineers circulate and maintain norms of sound engineering that delineate what sound engineering bodies may or may not do. They also delineate which gendered bodies may engineer sound. Live sound engineers in sound companies, and recording engineers in recording studios are in gatekeeping positions in the industry, and the norms they produce and circulate are gendered and operate to maintain sound engineering as a male domain. Professional male sound engineers often produce norms that suggest that female bodies are not ideal for sound engineering, as they believe them to be weak and technically incapable. It is unsurprising that of those male engineers who expressed such views, none worked with women sound engineers. It is difficult to find women sound engineers working at established sound companies and recording studios, and the dissemination of sexist norms in the industry indicates that some companies are reluctant to employ women.
The sexist norms have the added effect of discouraging women from trying to attain formal employment.

The effects of the discourses are not absolute. A few women are becoming sound engineers, in paid employment and as amateurs. Some of them do so while accepting the discourses of sexual difference. Some male engineers resist the discourses of sexual difference, and provide women with employment opportunities in their sound companies, or teach women engineering skills that enable them to work as freelance engineers, and I will address this in the following section when I consider mentoring relations. Many women resist and contest the discourses of sexual difference, arguing that they can carry speaker cabinets and rig PAs as well as any male engineer. Some have established their own recording studios or are making names for themselves as in-house live engineers at music venues. Some have even co-established and co-run their own sound companies. A few sound engineers, men and women, are now even arguing that there are sound engineering tasks at which women can excel, such as listening to clients and providing the required musical aesthetic, and that they have a unique contribution to make to the music industry. Caution is advised in accepting reverse discourses of sexual difference. Instead, I suggest that some gender-neutral discourses of sound engineering, particularly those that emphasise its nature as an acquired skill, might function more effectively to open up sound engineering to everyone, regardless of gender.

3.4.3 Citationality and Creative Control
McCartney (1994) and Brown (1995) contend that the emphasis on power and control in music technology alienates women from the pursuit of technical musical roles. I believe their arguments rely on a misunderstanding of power that confuses power and control with domination. My own interviews with
women sound engineers suggest that they enjoy the power and control that technology equips them with, because it enables their creativity. Women are already contributing their own specific musical aesthetics to the field of musical production through the do-it-yourself ethic. This involves taking on all of the recordist roles - of musician, sound engineer, and producer – and creating recordings using a home studio. I argue that, because women have been marginalised as popular musicians as well as sound engineers, they are channelling their engineering skills into alternative underground musical ventures that are characterised by relative autonomy, creative control and self-determination. This is a vital source of empowerment for women sound engineers.

Women in New Zealand have largely been excluded from paid employment in sound engineering. The established male sound engineers have by and large exercised power and circulated discourses that have effectively kept women out of the sound engineering establishment. A few exceptional male engineers have resisted and challenged these discourses, and to some extent, women have reiterated these power relations and discourses. But many are performing gender in ways that undermine the norms. They have questioned the norms and sought alternative avenues into sound engineering. The most popular route for women into sound engineering is through academic courses. Boden Sandstrom has already demonstrated in her 2000 study that aspiring female sound engineers of the 1970s benefited greatly from physics of sound classes and practical courses (Sandstrom 2000, p.297). Similarly, academic audio and sound training at SAE, MAINZ, SIT, and various other short courses have provided women with a solid foundation for knowledge in the sound engineering field since the 1980s. Only a handful of women I interviewed had not had some formal academic training in sound engineering.
Many of the women who had studied sound engineering spoke of their need to exercise creative control over their music. Sound engineering courses have enabled them to do this. Rebecca, an electronica musician, studied audio engineering because

I create music and felt that I wanted an independent stroke in my music in a technical way, so that I could do everything myself and not rely on other people to help me out. Consequently I’ve achieved that. By doing audio engineering I can now record pretty much everything I want and it gives me so much creative freedom (personal communication, 20th June, 2005).

Live event production courses have had similar empowering effects. Maria, a rock musician who studied sound engineering, said, Learning sound engineering was because I wanted to learn more about the stage and set-up so that if I should carry on with my own music I’d have a lot more input into the sound that was coming out of the system (personal communication, 30th June, 2005). So for Maria, learning sound engineering enabled her to more easily determine the live sound she wanted her band to achieve, because she would be able to communicate with the sound engineer in his or her terms: ‘Being able to understand the terms, because it is another language. Being able to articulate to the sound mixer what you actually want to sound like’ (personal communication, 30th June, 2005). This is similar to what Sandra, another musician, told me of her reason for studying sound engineering.

That’s basically why I got into it. Being a musician and just wanting to get as good a sound as I possibly could. Now I find that when I go and play, I can say, ‘I need this and I need this and I need this’, and they go, ‘Great.’ So it makes it a lot easier for me to communicate with whoever’s doing the sound (personal communication, 9th December, 2005).

Studying sound engineering does not necessarily lead to professional sound engineering jobs with sound companies or recording studios. In fact, I argue in section 5.8. that instead of enabling women to work as sound engineers in
paid employment, sound courses may function as a career setback. However, many women who study formally sound engineering are not looking for such employment anyway, or if they are, it is only one of a range of reasons they study it. Many are looking for an understanding of sound engineering that will contribute to and enhance their music-making activities. I argue that women who engineer their own music are citing the gendered norms of sound engineering but in distinctively resistant ways that call these very norms into question. For them, one needn’t be professional and male to be a sound engineer. In fact, one may altogether bypass the informal, apprentice-style training with its focus on brute strength or on being a ‘gear-head’ and knowing about all the latest advances in audio technology. The discourses of sound engineering emphasise the notion that women are too weak to carry music equipment and are not interested in technology anyway. But there are other, less visible, less prestigious areas of sound engineering that pose a challenge to the notion that the music industry establishment as it currently exists - including the hierarchical business structures of recording studios and PA companies - is inevitable and desirable. Women sound engineers in New Zealand have gravitated towards amateur sound engineering as a do-it-yourself practice enabling an autonomous aesthetic and creative control over music.

This is not to argue that the sole motivating factor behind women’s do-it-yourself approaches to sound engineering is their exclusion from professional employment as sound engineers. Many such women do not pursue sound engineering for its own sake, as one would expect of professional sound engineers. Rather, these women are often first and foremost musicians, and are looking for ways to enhance their musical capabilities without surrendering control over the aesthetic to a stranger with technical know-how. I also wish to clarify that in referring to the concept of ‘autonomy’ I do
not mean to suggest that music is created by a singular individual unconstrained by external forces such as history, class, gender, ethnicity, age, career stage, and trends in music production, factors that shape and contextualise music practice. These factors anchor all musical creation. To deny this would implicate me in the production of ‘genius’ discourses which are highly problematic due to their denial of social context and particularly their historical and continued denigration of feminine forms of creativity (see Battersby 1994, for a detailed deconstruction of ‘genius’). By autonomy, I am invoking a musical practice whereby an individual or group of musicians record their own music free of the input of professional formally employed sound engineers and producers. In other words, the aesthetic they produce is shaped by social factors but ultimately decided upon by the musicians.

It could well be argued that male musicians commonly engage in do-it-yourself sound engineering in the creation of their music, and thus the practice has no particular significance for women. It is true that today men can often be found recording their own music in home studios and they may even be more common than female amateur sound engineer-cum-musicians. But the aspiring male sound engineer does not have his range of sound engineering activities circumscribed by gendered norms that are produced and circulated by sound engineers. Men are welcomed into all fields of sound engineering, whether professional or amateur. For women, amateur sound engineering may well be the only field of sound engineering they are truly accepted into. Furthermore, amateur male sound engineers, when asked about their activities, largely did not accentuate the self-determination and creative control with which it equips them. This contrasts sharply with women sound engineers’ experience of home recording.
Thus for women, the wider accessibility of home recording technology and sound engineering courses have enabled them to practice as sound engineer-cum-composers with a high level of determination over their musical creations, whereas previously they would have been expected to apprentice themselves in a sound company, recording studio, or to a freelance engineer. As I show in section 5.6., these avenues can discourage women and are often rife with discriminatory attitudes and practices. Women’s do-it-yourself sound engineering has emerged as a viable alternative for women to fulfil traditional feminist imperatives such as self-determination, and to provide an avenue less tainted by the sexist gender norms that inform professional sound engineering, exposing them as contentious and unnecessary.

It is not my intention to argue that women’s oppositional sound engineering practices are devoid of power relations, a theoretical move that would be at odds with my employment of Butler’s performativity theory which explicitly recognises performances of gender as conduits of power. As we have seen earlier, Foucault argues that practices of resistance are everywhere that power relations exist, that is, in all social relations. What this means is that resistant citations to the gender norms of sound engineering are inevitable, and a do-it-yourself musical ethic is one such locus for female resistance.

Jacques Attali’s (1985) work is pertinent to discussion of women’s do-it-yourself sound engineering/composition because of the connection he draws between the creation of music and social power. For him, the organisation of noise into music is an exercise of power. ‘The technology of listening in on, ordering, transmitting, and recording noise is at the heart of [the apparatus of power] … this is the ability to interpret and control history, to manipulate the culture of a people, to channel its violence and its hopes’ (1985, p.7). His theory rests on the premise that music has no meaning in and of itself but is
ascribed (1985, p.25). Attali designates four phases in the development of music, which, according to him, predict and precede changes in the socio-political order. Each successive phase includes those that came before it, but is predominant over them (Attali 1985, p.43). It is not necessary here to describe each phase of Attali’s model because only the fourth, in its example of collectivist power, is pertinent. It adequately illustrates Attali’s assertion that music and noise are inextricably implicated in relations of social power. The preceding phases, of sacrifice, representation and repetition, refer to previous historical periods in the development of technology and are not pertinent to contemporary popular music production.

The fourth and final phase that Attali describes is the age of composition, which is ascribed a utopian element. Ultimately, the age of composition will bring about an entirely new society, where music is created by anyone, out of anything, simply because they can. Composition allows the composer (who is no longer a specialist but an everyday person) a fruitful relationship with his/herself: ‘playing for one’s own pleasure, which alone can create the conditions for new communication … [and] the emergence of the free act, self-transcendence, pleasure in being instead of having’ (Attali 1985, p.134). But it also implies the formation of musical collectives where humans create and play for and with each other in a free exchange of sounds: a new mode of communication (Attali 1985, p.143). This fourth phase of composition is therefore relevant to discussion of the creative freedom of women sound engineers. It seems to promise a way to overcome some of the aspects of the music industry that musicians typically experience as constraining, such as the dominance of major recording corporations; the narrow definition of musical ‘success’ based on sales and radio play; the star system which allows only a few lucky/savvy musicians to turn their labours into profits; and the channelling of most musical commodities into identifiable and marketable
genres. Although Attali’s vision of autonomous musical collectivities is compelling, I am reluctant to favour it over Arendt’s theory of solidarity because it is not clear that his heralded age of composition has been reached. One need only browse through one’s local music retailer to see that the age of repetition predominates with its accompanying reliance on the mass industrialised mode of popular music production.¹⁴

Women’s amateur sound engineering practices illustrate that resistance is possible and inevitable through the mechanism of performative citationality. Two of the more noticeable and productive effects of resistance when women engineer their own sound are the musical product and the production of an empowered female subject. When women engineer their own sound as musicians they create a musical product. This musical product, in turn, will function as a discourse or a kind of knowledge delineating a musical aesthetic that the musician-cum-sound engineer finds valid or true. Discourses and knowledge may also be transmitted in the music through harmonic, melodic, timbral and/or rhythmic conventions, or in the form of lyrics, or in the engineering and production techniques. This musical product, as a discourse will in turn constitute and consolidate further power relations.

Another effect of women engineers’ resistance through self-engineering is the subjectivity of the sound engineer. As we have seen earlier, many women sound engineers experience a sense of self-determination and autonomy through engineering their own sound or even through knowing sound technology to the extent that they can articulate their desired musical aesthetic to the person engineering their sound for them. Through engineering their own sound, or more generally, understanding how sound is

¹⁴ I argue further, in section 4.2.1., that Attali’s championing of the age of composition is hampered by an implicit technological determinism.
engineered, women perceived themselves as empowered, sometimes even feminist subjects. Resistance does not simply refuse power relations, it produces knowledge and subjectivity in the same way that power does.

Performative citationality is a theoretical lens through which women’s resistant sound engineering practices are revealed. However, it is unlikely that these practices on their own will cumulate to the extent that the occupation is reconfigured to be accessible to women to the same extent that it is accessible to men, insofar as women sound engineers remain focused on proving their abilities as isolated individuals, in fact, the individualism manifest in women’s explanations of their creative empowerment is striking. The problem, I believe, stems from the atomisation inherent in ‘doing it yourself’. If a musician can steer him or herself through all of the stages of musical production, what need is there for collaboration? The need exists: lacking any sort of unity through which women might be collectively empowered, their progression into sound engineering will come to a standstill. Such are the limits of the do-it-yourself ethic, but also of Butler’s theory of power. Butler, and by extension Foucault, concentrate on the individual exercise of power and resistance to the exclusion of all else (Allen 1999, p.79). If we take their frameworks of power as complete, it implies that the only means at our disposal for altering oppressive social norms are individual in nature. Collective forms of power, which, given their reliance on consensus, might be at least as efficacious, are not considered. It is for this reason that I follow Allen’s suggestion to investigate the possibilities that an Arendtian framework of power as solidarity might hold for gender relations in sound engineering.
3.4.4  Mentoring, Solidarity and Sound Engineers

Solidarity is evident in sound engineering when sound engineers take women under their wing, acting as mentors for them and teaching them the trade so that women can then establish themselves as sound engineers. Feminist musicologists have already suggested that women musicians in leadership roles in music education can act as role models and, better still, as mentors for female students of music. The woman musician in an authoritative position demonstrates to other women – and to men as well – that despite the obstacles, women can succeed in musicianship and scholarship (Lamb 1993, pp.176-177). Positive accounts of mentoring women exist in the world of sound engineering: Janet, Jasmine, Laura and Sarah all confirm this.

Janet

My partner (I was very lucky) knew sound quite well beforehand so I had someone that was an able teacher who was willing for me to learn. In a lot of instances being a female, instead of people trying to teach you, or me in particular, they don’t try to teach you. They try to mystify you just to build their own ego up. I find that very common. I think its part of the average New Zealand male psyche actually. It’s more of a rarity to find someone who isn’t like that than someone who is (personal communication, 15th December, 2005).

Janet’s former romantic partner is a sound engineer, and together they co-owned and ran a sound company. Her partner taught her how to put the system together and operate it. She praised his teaching skills and was very grateful for the knowledge he imparted to her. This was knowledge she in turn shared with women who wished to learn about sound.

Work and Education paid for me to do two weeklong sound courses … for women only. It was sound, but we sort of touched upon lights as well. It was just live production work and we got 3 or 4 lighting girls and a couple of sound engineers permanent out of that course (personal communication, 15th December, 2005).

Janet helped to teach another woman sound engineer I spoke with, who was very appreciative of the knowledge and skills she has gained from her time under Janet’s informal tutelage. Janet’s story indicates how mentoring
establishes co-operative relationships between tutor and tutee, relationships that the tutee may in turn replicate with other women. Janet’s experience is verified by other feminist musicologists who have documented the techniques which women use to empower themselves within the male-dominated music industry, such as forming female enclaves. For example, Bayton found that women in the UK had established women-only PA companies, women-only recording studios, women-only sound engineering courses and set up women-only gigs (1989, pp.527-540). Another empowering example of a female musical production initiative is the Women’s Audio Mission, a not-for-profit organisation in San Francisco which provides audio engineering training for women (Women’s Audio Mission, 2009). Women, particularly in the 1970s, tended to enter the field of sound engineering through academic training and hands-on experience at women’s music festivals. These routes into sound engineering are forms of resistance to women’s exclusion from mainstream avenues into sound. Sandstrom notes, ‘This process of women building and creating their own environment started to break down the powerlessness that women had systematically been made to feel’ (Sandstrom 2000, p.298). These practical solutions are an example of female solidarity in action, which mitigate the problems of sexism in rock and provide women with avenues for exercising control over the production of music.

While such examples of solidarity between women in popular music are of crucial importance, solidarity with women can be enacted across gender lines. Respondents divulged their experiences of this.

Jasmine

I made a really good friend … when I was about 14 and he was a sound engineer, he was just a little bit older than me. And he had a band, and I just really wanted to get into it. And he said, come and do it for us, so he kind of taught me some little things, and from there I’ve met other sound engineers who have taught me other things. So ten years later I’m doing it (personal communication, 13th December, 2005).
Laura
I met this person from [Europe], and he worked for a PA company and they would tour bands around Europe … and I said that I was really keen to learn sound engineering and he said the company would take me on as a trainee. I think perhaps because he was missing New Zealand company as well. So it was a really great opportunity so I went and lived in Europe and lived in a big warehouse there where they had all the PA equipment, so downstairs I could set up different configurations of PAs and play with it (personal communication, 10th May, 2006).

Sarah
They hired some gear off some guy at this studio and he saw that I was really keen to learn and to help, and he wound up approaching me to come up to [the studio]. He owns [it]. … So he wanted someone he could train from scratch basically, and when he saw that I didn’t have a job and was keen to learn, he offered me a full-time job and taught me from scratch. So I basically did an unofficial apprenticeship down there (personal communication, 18th May, 2006).

Jasmine, Sarah and Laura all reaped the benefits of mentoring relationships with a male sound engineer. Mentors helped facilitate their paths into sound engineering, and subsequently, all of them work in paid employment as sound engineers. I believe mentoring in sound engineering is an example of Arendtian solidarity. Some men in the industry have been supportive of and have actively encouraged women’s inroads into an occupation in which they are in the minority. In order to do this, they have ‘acted in concert’ with the women, even though they were not themselves women. Thus, when male sound engineers mentor women, they are enabling the women to enter a male-dominated occupation, but they do so without concern for an essentialist notion of ‘female solidarity’. They have helped regardless of gender.
However, all of this mentoring does not alter the reality that women who wish to become sound engineers face obstacles due to perceptions in the music industry about gender and capabilities. For sound engineering to become a truly gender egalitarian job, many, many more mentoring relationships need to be initiated. Were more women equipped with the knowledge and skills to engineer sound, skills passed on to them from willing mentors, it would make it harder for gender-conservative attitudes in the music industry to thrive. Successful women and men in sound engineering could help to make the occupation more attractive to women, and in the process widen women’s career options, by founding relationships in which they mentor women who want to be involved in music production. Some already take on mentoring roles. However, the masculine culture of sound engineering that discourages and excludes women through a social alignment of maleness with key skills required for sound engineering, will need to alter so that men are more willing to mentor aspiring women, and so that women are attracted to the work in greater numbers. Changing the masculine culture of an occupation is notoriously difficult to achieve. However, this is not to suggest that it should not be attempted, and one way to go about this is to disrupt the myths of masculinity that shroud heavy lifting. In later chapters, I pinpoint other aspects of sound engineering that must be altered to make it more female-friendly, and make suggestions as to how they can be enacted.

3.5 Conclusion

I have been concerned to explicate the relations of power that produce gendered beings in the context of popular music production. How is power negotiated in the recording studio? How is it negotiated in a live gig? How does gender inflect these relations, and what does it mean to be gendered as a sound engineer? Popular music scholarship, with the exception of theorists such as Greene, Porcello, and Leonard, has tended not to be sensitive to the
shifting and contextual underpinnings of the power relations between sound engineers and the people they work with. Through use of Foucauldian concepts of disciplinary power, surveillance and normalisation, I believe scholars can attain such sensitivity. However, if this sensitivity comes at the expense of gender analysis then I question its usefulness. There is no reason Foucauldian analysis cannot incorporate a feminist normative framework that illuminates the ways women are disadvantaged in power relations in popular music production. The discourse of sexual difference embedded in the heavy lifting debate is a case in point.

But a Foucauldian analysis of power does not go far enough, as it leaves some of its manifestations partially concealed. Resistance to oppressive forms of power is more convincingly theorised by Judith Butler in her account of citational performativity. Her locus is the power of gender norms and thus is an ideal feminist tool that I have deployed to illustrate women’s resistance to the masculinisation of sound engineering through empowering do-it-yourself sound engineering/composition practices. Such women cite the norms of masculine expertise and feminine inadequacy only to reject them. The notion of citationality as formulated by Butler enables an account of resistance to gender norms that theorises the relationship between agency and subjection – a relationship that her predecessor Foucault neglects to elaborate upon.

Nonetheless, personal empowerment alone cannot alter the job of sound engineering to make it enticing enough for women to enter in equal numbers to men. For this to happen, collective action is necessary, and this is an area conceptually lacking in Butler and Foucault’s work on power. Fortunately, Hannah Arendt fills this void with a notion of power based in collectivism and solidarity, but a kind of solidarity that breaches the socially constructed boundaries of identity in a way that avoids the problem of essentialism that
has tainted some feminist theorising. Power as solidarity is evident when one sound engineer acts as a mentor for another, helping him/her on their career path. Women and men in sound have acted as mentors for aspiring female sound engineers in this very way, and the respondents in my study talk of such relationships very appreciatively. The question then becomes: how can we ensure that a great deal more mentoring relationships are initiated, such that women continue to increase on their gains within the field of sound engineering to the extent that the barriers of discrimination and sexism cease to be barriers?
4 Man Machine or Woman Machine? The Gendering of Technology in Sound Engineering

4.3 Introduction

Recording engineering and live sound engineering are vocations in which technologies of recording and amplification are deployed to enhance and balance the sound emitted from a musical source. Thus my consideration of the processes by which sound engineering is gendered incorporates an examination of the relationships sound engineers have with the technologies they utilise. Using the data I collected from interviews with male and female sound engineers, I will show that any generalisations about women’s technical ineptitude and men’s technical prowess fail to encompass the breadth of experiences that sound engineers have with technology. Regardless of gender, for some sound engineers, technical aptitude is a continual learning process whereby confidence is gradually accumulated. Other sound engineers note an inclination towards the manipulation of sound by means of technology from a young age, and this holds true for some women as well as some men.

Although technology is used to ‘engineer’ sound for live musical events and for musical recordings, I focus more specifically on the culture of sound engineering and how technology reflects as well as contributes to the gender values of that culture. Instead of arguing that music technology is gendered (a view that may well reinforce the naturalising of gender roles), I seek to deconstruct the discourses of sexual difference that are circulated in sound engineering, particularly in reference to music technology. The culture of sound engineering in New Zealand, of which technology plays an integral part, reflects and contributes to the stabilisation of gender roles in the New
Zealand music industry, to our understandings of men and women’s relationships to technology, and, to an extent, of wider New Zealand society. By way of an analysis of interviews, I argue that there is in fact nothing inherent to being female that prevents women from embracing the technical role of sound engineering. However, discourses of sexual difference emphasising women’s lack of technical capacities persist. It remains to be seen how reconceptualising the twenty-first century female body as cyborgian will overcome such gender essentialism.

This chapter begins with a discussion of feminist definitions of technology as a force that is constituted by - and constitutive of - social relations. To this end, the work of Judy Wajcman (1991, 2004) and Teresa de Lauretis (1987) provide tools from which to construct such a definition. Wajcman in particular has much to say on the shortcomings of deterministic assumptions of technology’s impact on society. Her critique of technological determinism, and the related concepts of technophobia and technophoria, provides a useful guiding post with which to navigate a technofeminism that acknowledges the capacity for society and technology to affect one another. In the first section I will also show, with reference to popular music studies literature, that technological determinism continues to influence the theoretical debates about music technology. A number of studies have adhered to the seemingly opposed but epistemologically related views that new music technologies either liberate society or further enslave humans to capitalism. A significant proportion of this research, while critical of such technological determinism, fails to account for identity factors such as class, nationality, gender or ethnicity that must be considered if we are to adequately situate technology’s reciprocal relationship with society. Without attention to such issues, some theorists inadvertently reproduce the notion that access to and use of technology is potentially open to all. Technology as ‘democratic’ is an
insidious discourse that creeps into scholarly work often unintentionally. I suggest that a technofeminist framework, as described by Judy Wajcman (2004), can successfully counter explicit and implicit forms of technological determinism in popular music studies.

I also note the ways in which Judy Wajcman’s technofeminism is compatible with Foucault’s work on normalisation, which is useful for feminism in that it emphasises the constructed nature of subjectivity, and proposes the idea of ‘social technologies’. However, I am concerned to broaden Foucault’s scope, as de Lauretis does, to include technologies of gender such as the music industry. I then deconstruct the discourses of sexual difference that circulate in sound engineering. This approach has advantages over Wajcman’s view that music technology is gendered, a confusing perspective that seems to naturalise gender at the same time that it emphasises its social construction.

Having shown that discourses of sound engineering and music technology depend on the construction of women as technically incompetent and men as technically adept, the following section undermines the prevailing myth that women (and not men) have a fear of technology that cannot be overcome, preventing them from becoming sound engineers. Another section undermines discourses of sexual difference that prescribe a technophilic attitude as essential for sound engineering but attributable only to men. Such stereotypes of women as technophobic and men as technophilic lead me to assess the prevalence of gender essentialism in sound engineering: do sound engineers themselves endorse these stereotypes, even when they are shining examples of the unsuitability of gendered generalisations?

In section 4.3.6, I show that the discourses of sexual difference expressed by sound engineers are also reflected in public discourse. The data I collected
from *New Zealand Musician (NZM)* magazine shows that a gendered divide is constructed between men, who are acknowledged as musical and technical beings, and women, who are under-represented as musicians but sometimes appear in metaphorical language as machines for men to manipulate. This dichotomy between man/human and woman/machine expressed in *NZM* forms the basis of my critique of cyborg feminism. While numerous musicologists such as Andra McCartney (1994, 2000), Jennifer Brown (1995), Thomas Porcello (1996), and Leslie C. Gay (1998) have expounded the possibilities that cyborg imagery suggests in the work of musicians, I contend that cyborg theory is of limited use insofar as feminism’s goal is to upset the perceived misfit between women and technical expertise in the interests of gender equality. It is doubtful, for reasons elaborated later in section 4.3.6., that cyborg feminism will be the answer to the under-representation of women in sound engineering for contemporary music.

### 4.4 The Reciprocal Relationship of Technology with Society

Since the 1970s, the sociology of technology has been the subject of a number of intra-disciplinary critiques. These critiques have challenged dominant theories of technology that can be categorised as technologically deterministic. Technological development can no longer be understood as an autonomous progressive force that operates independently of social beliefs and agendas. Nor can it be understood as a primary instigator of social change. MacKenzie and Wajcman (1985) (see also Wajcman 1991 and MacKenzie 1996) are two notable sociologists who have documented this shift in understanding within the sociology of technology. A questioning of the neutrality of technology and technical knowledge informs MacKenzie’s research. Technological determinism continues to underpin popular beliefs about the development and use of technology in society. This is evident in the
belief that technology progresses in a linear fashion and that the most useful and efficient technologies are always the most successful (MacKenzie 1996, p.5). He contends that sociological analyses of technology can provide a necessary counterpoint to ‘technological determinism’.

Harry Braverman (1974) was one such sociologist to challenge technological determinism. Braverman’s Marxist framework emphasised the division of labour, showing that technologies were deliberately developed to reduce the reliance of business owners and managers on human skill. Technology is a product of social relations, and is often designed with the goals of particular sectors of society in mind. Technology is understood as socially shaped, as born out of the political agendas of dominant socio-economic groups concerned with advancing their own interests, those which compete with, and sometimes undermine, the interests of subjugated classes. It is often the members of the subjugated working class who must, in their work, use the very technology that is developed to undermine their skill and job security.

Marxist approaches to the critique of technological determinism contribute a great deal to our understanding of how technology is shaped by society, especially in relation to class. Questioning the neutrality of technology has also been the first step in a feminist agenda eager to prove that androcentrism is at work not only in the development and use of technologies but also in mainstream sociological studies of technology. Cynthia Cockburn showed that gender shaped the automation of machine tools (MacKenzie 1996, p.6). However, Cockburn’s research demonstrates that an exclusively Marxist framework obscures the ‘gendering’ of technology. For example, during the initial periods of industrialisation when processes of production moved into factories, a new gender structure emerged in which women were segregated away from paid employment and into the home. The predominantly male
skilled workers organised labour relations to prevent women from entering trades and from becoming members of unions (Cockburn 1985, in Wajcman, 1991, p.21).15 A failure to account for gender is a failure to substantiate women’s and men’s differential access to, and experiences of, technology. The gendering of technology and the gendered division of labour act in support of each other, ensuring women’s continued scarcity in prestigious, better paid technical jobs. Today, this is true of sound engineering for contemporary music.

So far, ... little attention has been paid to the way in which technological objects may be shaped by the operation of gender interests. This blindness to gender issues is ... indicative of a general problem with the methodology adopted by the new sociology of technology. Using a conventional notion of technology, these writers study the social groups which actively seek to influence the form and direction of technological design. What they overlook is the fact that the absence of influence from certain groups may also be significant. For them, women’s absence of influence from observable conflict does not indicate that gender interests are being mobilized. For a social theory of gender, however, the almost complete exclusion of women from the technological community points to the need to take account of the underlying structure of gender relations (Wajcman 1991, pp.23-24).

Judy Wajcman’s critique is directed toward sociologists of technology but resonates when applied to the majority of music technology studies. Part of Wajcman’s project has been to expose technological determinism in the sociology of technology and in the growing field of feminist technology studies. She is also concerned to counter methodologies in the sociology of technology that produce gender as a blind spot. When gender is made invisible as a salient category of analysis in social studies of technology, she argues, the conclusions drawn are inevitably incomplete. Taking this

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15 This has historically been true of the New Zealand music industry, as reported in Watkins (1995). Watkins found evidence that women musicians were barred from joining the Musicians Union in the 1960s, which effectively curtailed their public musical performance, as was the case for Auckland all-female band The Fair Sect (1995, p.55).
argument one step further, I contend that despite efforts to overturn discourses of technological determinism, when sociologists of technology fail to investigate gendered processes in technology’s production, circulation and consumption, they unintentionally reproduce a kind of technological determinism. This particular manifestation of technological determinism assumes technology’s gender neutrality, and thereby also assumes that where gender is concerned, technology is democratic. As we shall see, the democratisation of technology thesis is merely one guise that technological determinism takes. One of my aims is to demonstrate the breadth of the influence of technologically deterministic discourses in the social research of music technology.

The subject of technological determinism is highly pertinent to popular music studies, as one of its concerns has been to theorise the interconnections between technology, society, and popular music production. To this end, I turn to a discussion of debates within popular music scholarship about technology, evaluating the arguments with concern for overcoming discourses of technological determinism, particularly with regard to gender and other identity categories. It would appear that Timothy D. Taylor (2001) is the most successful at navigating these issues, however, it is notable that he views his work as incompatible with Judy Wajcman’s technofeminism. I argue that it is not.

4.4.1 Technological Determinism in Popular Music Scholarship

Technological determinism has left an indelible stamp upon sociomusicological analyses of technology. Its two most obvious manifestations have been technophobia, where music technology is imagined to have enslaved humanity under capitalistic, mass cultural production; and technophilia, where music technology is discursively rendered as an
autonomous force that provides everyone everywhere the means to participate equally in digital musical culture. Technological determinism can be understood as any discourse that intentionally or otherwise relies on an understanding of technology as outside of culture, devoid of social relations, but somehow able to determine cultural and social relations. It is implied to be both autonomous and omnipotent. Judy Wajcman writes of technophobia as an uncritical rejection of technology as inherently oppressive, and technophilia as a similarly uncritical celebration of technology as leading to a utopian world (Wajcman, 2004, p.6).

I contend that the technophobic/technophilic dichotomy, although useful, is flawed in that it allows us to overlook less explicit manifestations of technological determinism. An example of covert technological determinism occurs when social researchers ignore gender relations in their analyses of technology. While these self-same researchers, whose ranks include sociomusicologists, may be expressly engaged in the quest to debunk myths of technological determinism, they fall short of doing so because an absence of gender analysis of technological relations unwittingly implies that technology has the same consequences in production and consumption for men and women. In other words, a discourse of technology as democratic is latent. Explicitly technophobic and technophilic discourses are evident in music technology studies, as is technological determinism in its latent form. Presently I shall examine each in turn.

Debates regarding the influence of technological development on popular music production are by no means new, but extend back so far as Adorno and Frankfurt School critical theory. Adorno’s arguments are by now very well rehearsed in popular music studies, thus I shall only briefly outline them here. In ‘On Popular Music’ (2002, first published in 1941), Adorno was
scathing about the industrial mass production of music. For him, popular music is standardised, owing explicitly to the technological developments that lead to its mass production. Pop songs follow a rigid formula, differing from each other only slightly in detail. In fact, the content of songs is inconsequential: any alteration to them would leave the skeleton structure completely intact (Adorno 2002, pp.438-441). The audience is thoroughly deindividualised and reduced to a passive mass: they are manipulated into accepting it by the music's promoters, and by the music itself through its digestibility and simplicity (Adorno 2002, p.442). Yet the songs must contain some distinguishing features, in order that the audience recognises and remembers each in spite of its formulaic nature. Audiences must be convinced of their ability to freely choose what they consume, or they may revolt. Adorno calls the formula wherein each popular song is slightly distinctive from others ‘pseudo-individualization’ (2002, p.445).

Furthermore, the ‘rigid’ and ‘mechanical’ features of popular music are to some degree demanded by the audience. Because their lives are so gloomy under the conditions of industrial capitalism, because for many people labour is boring, exertive and engenders anxiety, popular music must provide them with a means of escape (Adorno 2002, p.458). For this escape, audiences require music that is novel and fun, but does not entail effort to listen to and understand (Adorno 2002, p.459). At the same time, they are lulled into believing themselves part of a community of taste. The knowledge that a song is popular, widely accepted, endows the listener with a sense of belonging to a group (Adorno 2002, p.455). Its popularity also lends audiences the illusion of control over it, as well as status: ‘By owning an appreciated and marketed hit, one gets the illusion of value’ (Adorno 2002, p.456).
In *Studying Popular Music*, Richard Middleton provides an outstandingly insightful and fair critique of Adorno’s bleak theories of popular music. He begins and ends by stating the value of Adorno’s work, the very reason why popular music scholars continue to grapple with it. Adorno recognised and asserted the importance of each facet of popular music: production, reception, and the content of the music itself. For Adorno, each of these facets demands to be examined in its own right and to be understood as inextricably related, as distinct parts that together interrelate as the totality of popular music (Middleton 1990, p.34). Of course, arguments rebutting the details of Adorno’s theories are well-rehearsed now. The claim that the mass production of music under consumer capitalism leads to musical homogeneity has been replaced by more nuanced views, such as those of Burnett (1996, see below). Middleton states Adorno’s rather technophobic view of mass production is still valuable in that standardisation continues to be a feature of some forms of popular music. But problems arise when applying this theory to the products of the entire music industry. While record companies try to control consumer demands in the endless pursuit of profit, they fail because the market is fundamentally volatile, and consumer taste unpredictable (Middleton 1990, pp.37-38). As Negus (1992) reminds us, record companies are well aware of the unpredictability of the popular music market and thus engage in risk management strategies. Nonetheless, their attempts at risk management work in tandem with attempts to predict the desires of popular music consumers, and Adorno is correct to believe this contributes to at least some standardisation of musical form.

The difficulty of anticipating consumer taste leads us to the second related problem of Adorno’s theory: the problem of agency. He characterises consumers as passive dupes ready and willing to consume whatever popular music the music industry presents to them. Given the fact that record
companies use risk management strategies to deal with the volatility of the market, this assertion does not stand up to scrutiny. As Middleton notes, Adorno here is deterministic, in that he characterises the listener as wholly determined by the product (Middleton 1990, p.57). In this framework, there is no room for variation in audience listening practices, no acknowledgement of the processes of meaning-making that are inherent in the audience’s engagement with the music, and no scope for audience creative participation, for example through dance. Studies of the reception of popular music demonstrate that audiences do not listen to music uniformly: they may draw different meanings from the texts, and engage with music creatively.

Recently, important technological innovations have affected popular music production, and as a result have reinvigorated the debates in popular music studies about the extent to which technology influences popular music production. The most significant of these innovations is digital recording technology. Digital recording has, to some degree, altered conceptions of what it means to be a recording engineer in popular consciousness. Throughout the 1990s, computer technology has become more economically accessible to many New Zealanders, and as a result so has recording engineering. Now it is possible for musicians to set up their own home computer-based recording studios for a few thousand dollars. While digital recording has become tremendously popular, the old bedroom recording device, the four-track cassette recorder, has waned in popularity, although it has not disappeared completely and remains an affordable if rare option for musicians who wish to cheaply propagate an analogue recording aesthetic. In other words, almost ‘anyone’ can become an amateur recording engineer. It is logical to suggest that the increase in accessibility of home recording has affected the professional recording engineer’s job, such that he/she may no longer be attracting as much popular music production business. The
musician who wants to exercise the maximum amount of control over the creative process may now bypass the professional recording studio experience completely, and record his/her own music at home. Effectively, in the home recording context, the musician can also be the engineer and the producer.

The home digital recording studio has the added advantage of being much smaller and lighter and more portable than the older analogue professional recording studios, which consist of large heavy equipment such as mixing consoles and reel-to-reel tape machines. In this way the computer home studio is more user-friendly. In addition, because of the wide availability of computers in New Zealand, I suggest that it is not so daunting to use a computer to record music, to become an amateur recording engineer as it may well have been to become a professional and follow through the traditional apprenticeship-style learning processes.

It is undeniable that the proliferation of digital technologies has affected the production of popular music. The exact degree of its influence has been hotly debated in popular music scholarship, and some scholars suggest a deterministic relation. One such scholar is Jacques Attali (1985). I have already outlined his four-stage framework of popular music production, which culminates in the age of composition, a utopic stage of society where musical creativity is considered freely available to everyone, in 3.4.3. Here I will consider some of his theoretical quandaries on the issue of technology’s position in his composition utopia. I am concerned by Attali’s assertion that the age of composition is only possible in this particular moment in history: ‘it is impossible without material abundance and a certain technological level, but is not reducible to that’ (Attali 1985, p.135), because it would seem that musicians who play for the sake of playing, and for no other reason, have
always existed. Why is ‘true’ composition only possible at this stage of technological development? He does not satisfactorily elaborate on this point.

Further to this, the age of composition, which is considered free and accessible to all and subsumes the prevalence of the previous three phases, is an unlikelihood given that the music industry continues to be structured not only by commercial relations but also by factors that Attali fails to account for, such as gender, race, nationality, ethnicity, and sexual identity. While it may be laudable to extract music from the commodity relation altogether (which has not yet happened, and the question of whether this is at all possible is moot), this will not solve the problem of access. Musical resources – including sound technologies - are more accessible to some people than others, their availability is segmented, stratified. The democratic potentiality of the age of composition is a fiction. Its gender-blind utopia would result in a situation where a great deal of people would be musically restricted, ultimately because of gender (among other factors). This is not utopia but dystopia.

Robert Burnett’s (1996) work undermines simplistic arguments that the increased oligopolisation and concentration of the music industry lead to the homogenisation of musical product. Because of the symbiotic mutualistic approach to interacting with minor companies, and through their control of large-scale manufacture, distribution and media outlets, the major recording companies ensure that new artists and genres can be incorporated into the structure to fulfil consumer demands (Burnett 1996, p.115). The result is not homogenisation but increased diversity and heterogeneity of musical products, an array of consumer choices. His account of corporate approaches in the production of popular music is enlightening, but it is hampered by a complete inattention to the operations of gender within the international music industry. Insisting on the heterogeneity of popular music obscures
gender segregation within the industry. The concentration of women and men in different creative work and music business occupations suggests that when gender as a social factor is foregrounded, popular music is more homogeneous than it might initially appear.

Further to this, Burnett’s arguments belie a naïve technophilia where he assumes that the greater accessibility of digital music technology will democratise the popular music industry:

It is also clear that during the 1980s the development of new technologies of both production and consumption have had a liberating effect on the creative process. With the high quality of inexpensive recording equipment, it is now possible for groups, virtually ‘off the street’, to produce at least technically high quality music (Burnett 1996, p.110).

While digital recording technology is relatively cheap and more accessible than previous technologies, not everyone has experienced its ‘liberating’ effects. Computer recording is still beyond the financial grasp of people from lower socioeconomic backgrounds. Class and ethnicity affect an individual’s access to the technology, training and work opportunities in this area, and so does gender, a point cautiously noted by Andrew Goodwin (2006, p.280). David Sanjek is adamant that either extreme of technological determinism – technophobia and technophilia – is to be avoided in studies of the popular music industries, because both poles co-exist simultaneously, that is, technology can be experienced as constraining in some ways and empowering in others (1998, p.182).

Technological change is a crucial influence upon musical and industry development. Virgil Moorefield (2005) reiterates Kealy’s argument that music production has been transformed via technological developments from a technical pursuit into an artistic vocation (p.xiii, see also Clarke 1983).
Moorefield, too, falls prey to a kind of technological determinism, advancing the argument that digital technology has democratised musical production:

Thanks to the integration of digital control and digital audio in the computer, an unprecedented amount of sonic control is available to everyone – there exists today unparalleled creative opportunity for the individual of even moderate technical ability. The availability of inexpensive resources for sonic manipulation will continue to radically alter the sound of pop music in the future (2005, p.xviii).

Here, tricky issues of access to computers and technical training are sidestepped in favour of a naïve anyone-can-do-it attitude. Socioeconomic constraints as well as gender and ethnic concerns fall away in Moorefield’s work, giving the impression that musical production is a level playing field open to all, but excelled in by a genius few. It is noteworthy that most of the producer/auteurs he waxes poetically about are white, and all are male. I do not intend to suggest that the producer as composer is not a valid area of study, or that the producer/composers Moorefield includes in his cross-section are unworthy of critical appraisal. However, it is a fallacy to uncritically adopt and adapt auteur theory to the production of music without a thoroughgoing critical examination of the gendered and racial politics of canon formation. Moorefield effectively sets forth his contribution to the canon of great producers, with no consideration for why it is that his producer/auteurs are by and large white men. Again, issues of sexism and racism in technological access, training, and employment do not warrant a mention. In fact, the producer is described consistently using male pronouns, except for one sentence on the second-to-last page of the book: ‘He [the producer] (or she, one hopes; the field is still almost entirely male-dominated) can play many roles, even varying from project to project’ (Moorefield 2005, p.110). This might have been an opportune opening for a discussion of gender segregation in the music industry, but no such discussion ensues. The racial
make-up of the music industry warrants even less of a mention, which is to say, none at all.

Other scholars in popular music studies have begun to rebut theories that credit technology with an inordinate degree of power and determination over popular music and society. One such scholar is Simon Frith (2007, p.118), who aptly notes that the corporations responsible for developing innovative new technologies cannot always anticipate their use by consumers. He draws upon the example of hiphop, where the recontextualisation of other recordings through mixing and scratching was not the intended purpose of turntables and mixers, and yet young urban black Americans appropriated such technologies for their own creative purposes and in the process left the music industry scrambling to protect problematic notions of authorship and copyright in the pursuit of profit. Yet the vast profits of major record companies rest upon these self-same technological developments.

Andre Millard’s historiography of recording technology sets forth a further challenge to technological determinism. Beginning with the invention of the phonograph in 1877 by Thomas Edison, Millard traces the successes and failures in recording technology, with excellent attention to historical influences such as corporate competition, the economic climate, the impact of world wars, and cultural change. Because of this, he manages to avoid the pitfalls of explicit technological determinism that beleaguer other experts on recording technology. As he states ‘the history of recorded sound provides us with an ideal case study of the causes and consequences of technological change. One thing that the tumultuous story of the phonograph tells us about technological change is that it is rarely absolute and final’ (Millard 1995, p.7). Roy Shuker also provides a moderate perspective of the influence of technology on popular music culture when he states:
New technologies of sound production are democratising, opening up performance opportunities to musicians and creating new social spaces for listening to music. However, these opportunities and spaces are selectively available and exploited by particular social groups (2008a, p.34).

He suggests that new technologies indubitably influence the processes of musical production and consumption, shifting our aural landscapes. But instead of positing a naïve technological determinism, he suggests that new technologies constrain the collective musical processes as much as they facilitate new processes.

Caution should be applied when casting judgements about the influence of new technologies over the production of popular music. As Steve Jones (1992, p.72) observes, the medium of sound recording is a locus of power and control. It is clear that changing music technologies have altered the ways in which popular music is produced, however, he draws a distinction between his view and the ‘democratisation of music’ argument, on the grounds that changes in music technology do not necessarily amount to changes in the policies and practices of the music industry in general (Jones 1992, p.11). The hierarchical structure of the industry and the profit motive continue to constrain popular music production to the effect that it is not democratic, it is not open to everyone, even if pop and rock songs and albums are in essence the result of a collaborative process. According to Jones, however, home recording does have the potential to empower musicians to construct aural scapes according to their imaginative wishes (1992, p.181). Unfortunately, he does not delve deeper into the social relations that limit empowerment and that restrict the access of persons of particular social groups to the means and processes of musical production.

Another contrasting account to the technologically determinist discourses that permeate popular music studies is that of James P. Kraft (2006). Detailing the
shifts in American musicians’ work in the interwar years, Kraft’s article is an excellent example of the negotiation of work rights between a musicians’ union and their corporate employers. Instead of asserting that developments in sound technology put musicians out of work and lead to deskilling, Kraft emphasises that the American Federation of Musicians rose to their new employment challenges. In particular, the introduction of recorded sound to film in 1925 signalled the end of the era of live musical accompaniment to film, and the new technology put control of the labour process more firmly in the hands of management and made thousands of working musicians superfluous… [it] also narrowed job opportunities, forcing widespread and sometimes painful social dislocations (Kraft 2006, pp.244-245).

The burgeoning entertainment industries in Los Angeles provided new employment opportunities for those musicians willing to relocate. With the combination of musical skill and union support, a number of musicians’ careers flourished (Kraft 2006, p.245). This union history provides an excellent counterpoint to technological determinist perspectives that imply new technologies lead only to job losses and the deskilling of skilled work.

Musicians, record producers and sound technicians have the capacity to negotiate the uses of new sound technologies from their inception. Millard, Shuker, Jones and Kraft have all contributed significantly to the project of undermining technological determinism in popular music studies, particularly its technophilic incarnation as technological democratisation. Unfortunately their scholarship falls short of a complete subversion of technological determinism insofar as they fail to consider the gendered processes that restrict women’s open access to popular music production. Their work implicitly assents to a latent form of technological determinism closely allied with technophilia, but which operates in a weaker form. This
subtle manifestation of technological determinism leaves uncontested, and thus assents to the notion that technology’s influence on society is gender-neutral, that it affects men and women equally. Technology, it is presumed, is democratic in its gender relations. But scholars of gender and feminism have consistently shown that this is not the case.

Musicians, record producers and sound technicians have the capacity to negotiate the uses of new sound technologies from their inception. Technological artefacts are typically considered masculine, most likely correlative to male domination of the physical sciences, where both ideology and material reality are mutually reinforcing. Bruce Johnson (2000) interrupts this ideological loop in his examination of the cultural dynamics influencing jazz in Australia in the early decades of the twentieth century. Contrary to received wisdom, in this instance, new sound technologies were associated with femininity, as is the case with the introduction of the microphone. He demonstrates that in the 1930s, the use of the microphone and electrical amplification to ‘unnaturally’ project the voice was thought to feminise the singer (Johnson 2000, p.96). Feminisation here is also understood to correspond to low culture in a low/high art binary distinction. Thus popular music genres such as jazz and crooning were discursively gendered feminine at the same time as they were considered debased musical forms. It was not until after World War II that jazz, the microphone and amplified sound lost these gendered connotations, and this was detrimental for women’s participation in jazz particularly: ‘in the earliest history of jazz in Australia, and before it began to acquire any artistic cachet, there were surprising numbers of women active in the area, as makers and participants. The subsequent masculinisation of jazz by a patriarchy led to two things – the exclusion of women from active roles, and the writing out of women from its history’ (Johnson 2000, p.69). By the 1950s, electrical music technology was
consolidated as male territory via its use in rock and roll music (Johnson 2000, p.88). Johnson’s study demonstrates that the association of masculinity and music technology is socially produced, and that cultural shifts affect the position of popular music in relation to its gendered codes, meaning that the possibility exists for the codes to be reconfigured, disrupted and altered. In other words, if male domination of the music industry and music technology is not a given, there is hope for cultural change.

The feminine association with low culture, and particularly of mass culture, continues to bear significance according to Tony Grajeda (2002). These discourses are played out in critical reactions to the emergence of the ‘lo-fi’ rock music phenomenon of the 1990s. The lo-fi aesthetic has two main characteristics: the abandonment (or at least the appearance of abandonment) of both technical prowess and technological advancement as criterion for ‘good’ rock music (Grajeda 2002, pp.233-234). Lo-fi rock has been celebrated in some critical quarters as adhering to values of anti-commercialism and authenticity (issues explored further in Grajeda’s article), but more interestingly for the purposes of this thesis, it has also been maligned by other critics as weak, amateurish, unfinished, unpolished, and ultimately associated with signifiers of crass/mass culture such as collectors, fans and retail assistants (Grajeda 2002, pp.236-240). Grajeda draws astute attention to the gendered associations of such discourses, as femininity has historically been constructed as incompatible with technological sophistication, high culture and discriminating sensibilities, and linked to mass culture (Grajeda 2002, p.239). Interesting also is the much-heralded location of lo-fi recording: the home, or domestic sphere, again, linked to femininity through women’s traditional domestic work.
Not content simply to invoke these gendered distinctions, however, Grajeda sets out to point out their inconsistencies, for as he notes,

lo-fi’s ‘realism’ ... conveys less an authentic baring of the soul than an explicit baring of the apparatus, this very strategy indebted to the historical avant-garde has long become a function, as Thomas Crow insists, of the culture industry itself (Crow 1985, p.257). Yet, to return to the feminisation of rock, in terms of cultural theory the gendered inscription of lo-fi as a feminised form of commodified culture would, perhaps dialectically, appear to complicate the treatment of the historical avant-garde itself, one that traditionally has been figured as a masculinised form of rebellion against bourgeois society (Suleiman 1990) (Grajeda 2002, p.246).

Like Johnson, Grajeda shows the distinctions between high culture and mass culture, technology and naturalness, and femininity and masculinity to be shifting terrain, subject to constant cultural negotiation, contestation and revision.

One of the most comprehensive and meticulous studies of the complex and variable relationship between gender, music and technology can be found in Strange Sounds: Music, Technology and Culture (2001). Timothy D. Taylor effectively draws together debates about the influence of technology on society with ethnographic studies examining the everyday deployment of music technologies by participants in taste communities and ‘little cultures’. His argument is inflected by Sherry B. Ortner’s ‘practice theory’ – ‘that human action is made by ‘structure’ and at the same time always makes and potentially unmakes it’ (Ortner 1996, in Taylor 2001, p.34). He sees practice theory as potentially more useful for popular music studies than other theories of technology such as actor-network theory, the systems approach, and the social construction of technology approach, which he contends all fail to adequately address the problem of individual agency. I disagree with his hasty disregard of other theories in science and technology studies, as Judy Wajcman is careful to argue that, despite the ideological constraints
associated with technology, women (and men) continue to adapt new technologies to purposes other than that for which they were intended. She expressed this argument in *Feminism Confronts Technology* (1991) and reiterated it recently in *Technofeminism* (2004). Nonetheless, Taylor’s engagement with the issue in popular music studies is to be applauded, for he steers his own research clear of the intellectual roadblocks of technological voluntarism and technological determinism.

Taylor, unlike a number of prominent scholars researching technologies in popular music, is explicitly critical of the naïve argument that technology democratises popular music production. In his estimation, democratisation arguments always operate under the assumption that everybody has a computer which for the foreseeable future is far less the case than the current availability of books in libraries (to which access is free). … Most of the people on the planet do not have access to a telephone, much less a computer with an Internet connection. … the claim that a particular technology is democratising should always be accompanied by questions: In what ways? For whom? (Taylor 2001, p.6)

In his subsequent chapters on space-age high fidelity and lounge music, he addresses precisely these questions, noting that the technology of high fidelity stereo systems, and the associated genre of music, lounge, have come to be gendered masculine.\(^{16}\) It is not so much that women do not have access to high-fidelity technology, but that more complicated technical systems are marketed to male consumers using highly gendered imagery that in turn influences the consumption of recorded music too. Thus Taylor builds on and extends some of Paul Theberge’s insights from *Any Sound You Can Imagine: Making Music/Consuming Technology* (1997). Theberge is expressly concerned with the development of digital music technologies especially keyboard

\(^{16}\) See also Keightley (1996), who illustrates the gender tensions of the introduction of the masculinised high fidelity home audio system into the feminised domestic space of home and family between 1948 and 1959; and Perlman (2003), for a recent ethnography of audiophiles.
instruments such as synthesizers, and he also convincingly argues that the new technologies reconfigure musicians’ relationships to production and consumption. Like Taylor after him, he is also attuned to the gender relations of technological development, showing the construction of the music technology consumer in trade magazines as male and technically masterful in contrast to machines which are associated with femininity and passivity (Theberge, 1997, pp.122-126).

Thus we see that a few popular music scholars have begun to challenge technological determinism and have absorbed feminist theory in ways that help them generate insights that bear on technology’s relationship with gender. Feminist-inspired popular music scholarship has the potential to effectively challenge technological determinism, although not always as we shall see in section 4.3.6. where I discuss cyborg theory’s contribution to feminist musicology. It is appropriate that I now examine theories of the gendering of technology. It will provide background considerations for my investigation of the discursive production of sexual difference in sound engineering.

4.4.2 The Gendering of Technology

The gendered division of labour, especially as it operates in sound engineering in New Zealand, is dealt with in more detail in section 5.3. and 5.4., before which it is useful to examine the ways in which music technology is imbued with discourses of sexual difference. This is necessary because it can provide a partial explanation of why sound engineering for contemporary music is a male-dominated vocation. It can also show why women and men tend to perform different sound engineering activities. From a feminist perspective, Judy Wajcman’s tripartite ‘working definition’ of technology can be usefully applied. Technology for Wajcman encompasses three aspects: the
physical objects themselves; the technical knowledge required to design, make, use and repair the physical objects; and the application of the physical objects. In other words, in sound engineering, technology would refer, for example, to the mixing console. It would also refer to the knowledge involved in designing, making, using and repairing the mixing console. Technology is also what sound engineers do with the mixing console, its application.

While technology has often been conceived of in traditionally masculine terms, Wajcman warns that feminists must remain wary of identifying technology with maleness in ways that reproduce this cultural and historical association. She notes that technology is often imagined in popular consciousness as industrial machinery and cars, which are technologies that have historically been the preserve of men. Imagining technology primarily in this way marginalises women’s innovations in areas such as horticulture, cooking and childcare. It is problematical to accentuate men’s involvement with technology at the expense of women’s, and to do so perpetuates essentialist assumptions regarding men’s and women’s biological differences. For example, feminists should take care to emphasise the cultural construction of masculinity as technically adept when explaining gendered symbolism in male-dominated technical occupations (Wajcman 1991, pp.137-139).

The concept of technology as gendered is useful in that it draws attention to the different relationships that men and women are perceived to have with technology. Wajcman’s caution against essentialism points to the possibility of confusion her strategy could entail. ‘Technology as gendered’ would seem to suggest the naturalisation of relationships between different genders and technology, even though it is this naturalisation that she would seek to challenge. Already the notion of ‘technology as gendered’ has an essentialist
legacy in musicology. Musicologist Victoria Armstrong draws upon Wajcman’s terminology and concludes from her observations of computerised composition classrooms that girls avoid computers because their teachers favour a ‘hard’ style of composition that involves logic and control, whereas the girls would prefer to adopt a ‘soft’, interactive style (2001, p.37). While I do not dispute the finding that female students often favour a different compositional style to male students, the testimonies of the respondents of my study expose these assertions as discursive fictions that work to reinscribe sexual difference. For some women, a so-called ‘hard’ style is appealing, as is a ‘soft’ style for some men. To what end are hard and fast generalisations about gender made? I believe ‘discourses of sexual difference’ to be a more suitable way of conceptualising the way genders are imagined and constructed in relation to technology. By emphasising the discursive nature of the relationship between technology and gender, I also draw attention to the fact that it is constructed and therefore that it can be imagined and produced differently from how it is now.

The music industry is a technology of gender. I distinguish between technologies as artefacts (and the knowledge associated with them), and ‘technologies of gender’ which are best understood as techniques for producing gender, a definition which I believe to be apt for explaining music technology’s involvement in moulding social beliefs and values (see also Greene 2005, for a similar deployment of the term ‘sound engineering’). I borrow the term ‘technologies of gender’ from the work of Teresa de Lauretis (1987), who states that gender, ‘both as representation and as self-representation, is the product of various social technologies, such as cinema, and of institutionalised discourses, epistemologies, and critical practices, as

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17 See also McCartney (2002, p.163) who suggests women compositions students’ have a tendency to favour “intuitive, improvisational” approaches to composition over the structured styles actively encouraged in the classroom.
well as practices of everyday life’ (de Lauretis 1987, p.3). While de Lauretis focuses on cinema as a site for the production of gender, another social apparatus that produces gender by similar means is the music industry, and in particular, sound engineering as an occupation within this industry. When using the term technology in this way, I do not intend to imply a totalising mechanism that exercises a unilateral power that dominates society. Technologies of gender influence society, but ultimately they do not determine society’s course. However, when certain institutions and apparatuses produce a consensus of gender discourses and ideologies, these discourses and ideologies become more prominent – they become successful as a technology of gender. I contend that recording engineering and live sound engineering are technologies of gender, and that, in conjunction with the wider music industry and other cultural apparatuses, they help to comprise a system that informs and develops cultural gender values.\(^\text{18}\)

De Lauretis (1987) has extrapolated such an understanding of ‘social technologies’ from Michel Foucault’s work in *A History of Sexuality: The Will to Knowledge*, which puts forward the argument that sexuality is produced through a ‘technology of sex’. The technology of sex is a network of productive power relations that produce sexual subjects by means of a series of discursive techniques (Foucault 1978, p.90). These techniques are not juridico-discursive forms of power but instead can be understood as disciplinary: they comprise the combined interests of medical, psychiatric, pedagogical and economical institutions. Such institutions have developed and promoted discourses of sex that categorise, subcategorise, and seek to explain its ‘truth’ – a technology of sex (Foucault 1978, pp.68-69). In order to establish this ‘truth’, individuals were required to ‘place themselves under

\(^{18}\) It is worth nothing here that de Lauretis (1987) includes feminism as a technology of gender. Feminism’s effectiveness as a technology then depends on the extent to which its discourses coincide with discourses produced by other social and institutional apparati.
surveillance’ (Foucault 1978, p.116). As we can see, Foucault’s understanding of technology implies something more than Wajcman’s view of technology as tangible tools and the knowledge associated with them. It implies any network of discourses produced by an institution or state apparatus. In the sections that follow, I discuss the circulation of discourses of sexual difference within sound engineering, showing their contribution to the operation of the music industry as a technology of gender.

4.5 Gendered Experiences with Technology

In this section, I am investigate how men and women sound engineers negotiate their relationships with, and attitudes to, music technology. The oft-referred to notions of men’s and women’s differences in technical expertise and confidence, derived from discourses of sexual difference and referred to by feminist theorists such as Armstrong (2001), Bayton (1989, 1997), Brown (1995), McCartney (1994, p.81), Turkle (1988), and Wajcman (1991), will be examined. Do women sound engineers experience apprehension with the technology they deploy in their work? Are male sound engineers naturally more competent and assured? I argue, with reference to interviews with a number of New Zealand sound engineers, that although female technical diffidence and male technical bravado are significant insofar as they resonate with the experiences of some men and women, they are discursive formations that reinforce and contribute to the construction of sexual difference in the music industry. If one is to avoid essentialism, discourses of sexual difference cannot be relied upon to characterise women’s and men’s experiences with technology, and thus, in this section, I endeavour to undermine them.

As meaningful as generalisations about sexual difference in technical competence may seem, the interviews point to a number of grounds on which they can be challenged. These include:
1) A number of women experience technical confidence;

2) A number of men do not characterise themselves as technically confident;

3) Technical confidence and technical reticence are concepts that reduce the entire range of human relationships with technology to polarised opposites. A number of respondents indicated a complex mixture of competence, confidence, and feelings of inadequacy;

4) Sound engineers often understand technical confidence as acquired through learning and through the accumulation of practical experience.

5) Technical confidence and technical reticence are ultimately about gendered beings enacting gendered norms. If we consider gender as a performance, as Butler (1990) suggests, it becomes possible to rupture the putatively inevitable link between bodies and behaviour.

Citing interview quotes, I show that some female sound engineers discuss feeling at odds with music technology. However, not all women mention feelings of incongruity, and it would appear that these feelings can be overcome with practice and experience. Furthermore, technical ability is merely one skill required for sound engineering, so it does not follow that technical intrepidity is the determining factor in good sound engineering.

4.5.1 Technical Reticence? Women’s Fear of Music Technology Revisited

For some women who hope to enter the domain of sound engineering, a lack of confidence with technical equipment may be a setback. Anna, a graduate of a sound engineering course, told me that her technical diffidence had contributed to her lack of success in securing sound engineering work:
Anna

For a start I’m quite shy, which probably didn’t help, because you can’t be shy if you are a sound engineer, that’s what they say. That’s the thing when you go to get the job, you really have to be out there and confident and I’m totally not like that. I’m really shy and I’ve got no self-esteem at all so that just didn’t help. ‘Cos’ when you see other people, especially guys, I have to say, they are really confident, they just go there even if they don’t know. They try everything and they’re not scared. I would be more scared to stuff it up or to look stupid or things like that... I mean that’s probably why I didn’t keep doing sound engineering, I am shy and if I’m not helped and if I’m not shown things, I just won’t go for it ...(personal communication, 6th July, 2005).

Here it is evident that Anna is situating herself firmly within the ‘femininity as technical reticence’ discourse, and sees her work as a sound engineer as stifled by it. In Chapter Three, I discussed the Foucauldian notion of discourse as producing bodies, and Butler’s (1990) assertion that bodies are gendered through the performative citation of gender norms. In this sense, Anna is performing a technically reticent femininity: in the same moment as she invokes the gendered ideal of femininity, she helps to maintain this norm through her ‘citation’ of it, contributing to its salience. She also polarises her experience from that of her perception of a generalised male group for whom technical confidence can be taken for granted: she ‘genders’ men through an opposite discourse of technical confidence. As we shall see in the following subsection, not all of these typical gender discourses resonate for sound engineers, nonetheless, most respondents were familiar with them and drew upon them with no prompting to explain women’s under-representation in sound engineering work.

However, not all sound and audio engineering students attribute initial difficulties with the technology to a lack of confidence. For graduate Rebecca, such difficulties were identifiably the fault of some of her teachers.
Rebecca

I remember often some of the tutors liked to overwhelm you with stuff, or [insisted] that it was easy. That was the two, they’d either overwhelm you with things and be totally jargonny [sic] and just expect that you knew and it was in this kind of really horribly unsympathetic way … without kind of describing or showing you or giving you a diagram, or interacting. They’d just kind of verbally blah at you, and I need to see it or understand how it works together, not have all these words thrown at me, I don’t work like that. The other thing was, which was quite patronising, you go and ask a question, you get told, ‘It’s easy, it’s easy, don’t worry its totally easy. Just do that and that’, and then you go off and you’re like, oh my god I have no idea, and you don’t want to go back because ‘it’s easy, it’s easy’ (personal communication, 20th June, 2005).

Rebecca was very critical of particular teachers at the sound course she undertook. She found that one of her teachers was unable to communicate the concepts to the students in a digestible way. This is a serious drawback for the sound engineering student, who comes to formal education to learn a trade only to find teachers who express the material in unintelligible ways and patronise the students. Thus Rebecca is able to resist the dominant discourse of sexual difference that would have her positioned as lacking in technical confidence, by asserting a counter-discourse that positions her teachers as inept educators. She is refusing to perform the culturally sanctioned ideal of femininity, and does so without invoking a discourse of male-confidence, female-lack.

As a teacher in a sound studio, Natasha was particularly aware of women students appearing less confident with technology. She suggested that students who appeared confident could sometimes unintentionally ‘put off’ the more diffident students. In order to encourage all of the students, Natasha tried to engineer an open and experimental environment where students were
free to try out their ideas instead of following technical rules. Cognisant of the
effect of masculine technical terminology on women students, she also sought
to directly subvert sexist jargon.

**Natasha**

The men would appear to be more confident than the women but actually know no
more. Sometimes that appearance of being more confident was enough to make the
people who felt less confident, who on the most part were the women because they
were obvious about it, and they perhaps sort of put them off a little bit. But I used to
always make jokes, because there’s an awful lot of male terminology in technology, like
there are the master controls and things, and I used to always say, this is the mistress
controller, and they’d go, huh? I’d say see, look how unequal language is, and they’d
go, huh. In Holland they’d call them the motherband. This is the motherband, I’d say.

In fact when I used to teach in the sound studio, basically I had students who were film
students and radio students and a few electroacoustic music composers so they’d be
from all over the place. So when I went in there I’d say, ‘Okay if you do these three
things, you’ll blow up the studio and then we’ll die. But don’t do those three things but
almost anything else, you can try.’ That was quite liberating, and that was also kind of
experimental artistic approach, as opposed to learning all these technical things and
then doing something, and then having the courage to go the next step (personal
communication, 12th August, 2005).

Natasha’s teaching experience was not in New Zealand, but gives some
indication of the incongruence of women teaching – and learning – male-
dominated subjects, and Natasha demonstrates her ingenuity at negotiating
this incongruence.19

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19 While no education studies have been conducted in New Zealand specifically devoted to gendered
experiences in audio engineering schools, section 5.8. addresses some of those issues, such as adult
women’s experiences of learning in a predominantly male classroom of male classmates and male
teachers. Section 5.8. is by no means intended as an extensive feminist sociology of the audio
engineering classroom but instead raises questions about the issues women students face. For research
on gendered subjectivities in a New Zealand mathematics classroom, see Walshaw, 2005.
A number of women acknowledged that initially they lacked confidence with sound technology. Other women, whose experiences with sound technology transgressed the woman/technical reticence, man/technical confidence dichotomies, suggested that technical reticence might contribute to women having difficulties in the occupation. These responses are significant, because they show that even a woman who feels confident with technology may perceive women to be technically reticent. Such a contradiction is an indicator of the pervasion and persuasiveness of the discourses of sexual difference. As Helen, an audio engineer with her own professional recording studio told me:

**Helen**

Women are not encouraged to patch up the VCR at home, it’s always Dad gets in and does it, or the brother. I think it comes right back from not ever getting to handle, getting a confidence with technology. I almost wonder if I just learned it because I was naturally curious. I was always doing it anyway and no-one stopped me from doing it. But I wasn’t encouraged, I just did it anyway (personal communication, 5th December, 2005).

When I asked Helen why she thought so few women worked in sound engineering, she replied that she thought the technology would be a deterrent to women:

**Helen**

I think possibly it might be that the technology is too overwhelming initially. So it comes back to not really being comfortable with it from an early age. That would probably be the only thing because there’s obviously no lifting involved in – you could be quite disabled and still work as a studio engineer. I can only assume it’s just a lack of feeling secure around technology (personal communication, 5th December, 2005).

Some male sound engineers construct similar narratives of the difference of confidence levels between men and women with sound technology, for
example, Grant explained that the only woman he has worked with (in a training capacity) wanted a theoretical grasp of the technology before getting hands on.

**Grant**

I don’t know if it’s necessarily specific to gender but this girl maybe seemed a bit more timid, not as confident in terms of using technology, as maybe some other guys I’ve worked with. But that would probably be all. I explained some stuff and she seemed to understand it a lot better than maybe other people that I’ve explained it to. It almost seemed like she needed a more theoretical base than a hands on, maybe (personal communication, 8th February, 2006).

Another respondent suggested that women prefer to know how the technology functions before they use it, out of a fear of breaking the equipment if they use it incorrectly.

**Andrew**

Just generalising they’re [women are] probably not as savvy as some of the guys. Scared they might break stuff…I couldn’t say why. Maybe because just from personal experience, I’ve always loved to pull things to pieces and I do care if I break it but it might be just a guy thing. You just get in there and use it until it breaks and then see what happens, test its limits and stuff like that. Maybe the women are smart enough to know that they’re not going to put themselves out there in the situation that could potentially turn pear shaped. Whereas a guy would possibly be a bit more arrogant and go in saying, I know all this, and chuck themselves [sic] in the deep end perhaps (personal communication, 19th May, 2006).

These two respondents’ perspectives are interesting in terms of gendered discourses. They, as do so many sound engineer respondents, cast women in terms of the dominant discourse of technical reticence. However, the suggestion that women prefer first acquiring theoretical knowledge of sound
technology as opposed to practical knowledge points to logical inconsistencies in the traditional framework of masculine dominance. Feminists have traced gendered philosophical dualisms as far back as Aristotle; the dichotomies position concepts such as male/female, masculine/feminine, mind/body and reason/emotion as polar opposites, valuing the former masculinised terms over the latter feminised terms (Wilshire, 1989). In other words, the dualisms are hierarchical and the concepts that are aligned with masculinity take precedence over those aligned with femininity.

What is fascinating here is that Grant and Andrew reverse the traditional association of masculinity with reason and the mind, which in their discourse become the domain of women sound engineers, who want to reason their way through technical knowledge by understanding it from first principles. Men, in contrast, want a bodily, practical, tactile understanding, according to Grant and Andrew. Here, discourse analysis exposes the philosophical framework of male dominance as socially contingent: when women are shown to be adept at higher order rational understanding, ordinarily perceived as a masculine preserve, the terms of the framework shift such that bodily knowledge is masculinised and occupies the privileged position in the hierarchy of dualisms. By installing discourses of sexual difference and ignoring the evidence that calls them into questions, men are effectively able to maintain their dominant and privileged position over women in the production of popular music. It seems that whatever skill sets are required for a given sound engineering task, women and men are repositioned within gender norms to the effect that the skills are aligned with masculinity and women are defined as lacking those skills, even when this runs counter to traditional conceptions of masculine and feminine traits.
Thus we can see that discourses of female technical reticence in sound engineering are prevalent, but the explanations for the reticence and its implications tend to differ. Women were likely to explain this phenomenon as a result of lack of experience, and noted that men were more likely to tinker with the music technology even if they did not know how to use it. Men as well as women suggested that women want to know how a machine works before using it, but some male respondents offered biologically deterministic explanations for gender differences. In the following section, I disrupt the easy equation of men with technical confidence and women with technical diffidence.

4.5.2 Technology and Discourse: Disrupting Gendered Dichotomies

Feminine technical reticence is not the only discourse at play for sound engineers. It is simply the gendered discourse of technology that is most frequently invoked. But some of the sound engineers who participated in my study give cause to question this narrative. To attribute women’s lower participation rates in sound engineering to feminine apprehension of technology, whether socialised or biologically determined, effectively marginalises the perspectives of women for whom technology is nothing to be feared. Helen and Tania respectively own and co-own recording studios and do not express any technical reticence. Instead technology and especially music technology has been a lifelong passion for them both.

**Helen**

When I was a teenager I used to play with tape-decks. The first time I played with a tape-deck I stuck the tape in and I recorded, and I was like, fuck it’s like magic! It seemed so unreal. And then I played around with tape-decks – actually that was before I was a teenager, then when I got a bit older I had two tape-decks and I used to do pretend multi-tracks, where you’d record on one, and then playback, and then play the

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20 Jason gives a biologically determinist explanation which is quoted and analysed in section 5.8.1.
next part and record that on the second one. Then you’d do it again. You’d get up to about four or five generations before it became too hissy. So that’s kind of what started me into it, because it was the combination of the technology and music as well. Then I got a four-track and then an eight-track, and then some more stuff, and more stuff. But my original idea of having a studio was just my own writing. But I got very sidetracked into doing engineering for other people. So that’s how I got into it (personal communication, 5th December, 2005).

**Tania**

I used to take everything apart. I would always fix the computers in the house, and I was always the one that everyone came to if they’d bought a new piece of equipment, I’d have to figure out how to use it … Actually, you take things apart, and before you’ve had a chance to put them back together, one of your parents would find you and be horrified, and go ‘what are you doing?!’… [I would dismantle] radios, cassette players, things like that. Usually they were things that weren’t working already. [To] see if I could find what was wrong (personal communication, 16th May, 2006).

Growing up, Tania enjoyed taking electronics apart to find out what made them work, and figuring out how to fix them if they were broken. She approached technology in a practical, functional way. Helen’s approach was more creative – her experimentation with multi-tracking suggests a more specific interest in layering sound as well as a fascination with its technical production.

Helen and Tania are exemplary of what Judith Butler (1993) might consider an ‘unfaithful’ citation of a gendered norm. In the final instance they were unable to be wholly determined by the norm of feminine technical reticence, instead they draw on the masculine norm of confident technical aptitude. One might go so far as to suggest they are performing a kind of sound engineering gender ‘drag’, women acting as masculine subjects within an occupation constructed as male. Their examples can be read as exposing the tenuous
nature of discourses of sexual difference: if technical reticence is not the ‘natural’ state of all women, then it is conceivable that it is not a natural state at all, but a socially constructed one that must be continually invoked and reinvoked in order to maintain its prevalence and intelligibility. But without this kind of resistant reading or any form of collective struggle for gender equality on the part of sound engineers, Helen and Tania’s examples are unlikely to ultimately dismantle the male/female, technical confidence/technical reticence norm, though they may for a moment interrupt it. Indeed, as has already been shown, Helen herself invokes technical reticence as a particularly feminine failing, in a somewhat contradictory move positioning herself merely as an exception to what is for her an all-encompassing norm. It is also worth considering the cost to women sound engineers of being required to repudiate femininity in order to attain success in their field, a consideration treated more fully in section 5.6.1.

The related discourse of sexual difference that emphasises men’s greater aptitude for all things technical is problematised by the words of a number of male sound engineers. Instead of stressing the ease with which they consolidated their abilities as sound engineers, they suggest that sound engineering is a set of activities that constantly puts their abilities to the test in ways that prompt them to question their confidence. Lucas, an experienced sound engineer with a prominent sound company denies a natural aptitude for technology and relates that his very first experience helping out for a sound company was terrifying. Craig, a freelance engineer whose skills encompass live sound as well as recording, has an attitude at odds with the notion that men are naturally technically inclined. He says working with technology is a constant process of learning.
In light of the above gendered discourse, one might expect an admission of technical confidence from David, who is the front-of-house engineer for an internationally acclaimed band and has mixed their shows on extensive tours of Europe. However, he also defies the dominant discourse of sexual difference, by professing a lack of interest in the internal electrical workings of sound technology. He relates that whatever confidence he has in sound engineering has been acquired through experiences sometimes so testing and frustrating that he has considered giving up the job. For David, creative understanding is equally as valuable a skill as technical ability in sound engineering, and he believes this is where his strength lies.

David
I’m definitely not confident with it and there’s a lot I don’t know about the technology. There’s a lot I don’t know about the PA systems I’m using and I’m terrible at even paying attention to what I’m using half the time. I’ve probably used every type of sound desk now that has been made. So I can walk into a venue now and see a sound desk and go, yep. In that kind of sense I am. But there might be a brand new system, or a different effects machine or some different compressors that I haven’t seen before, and I’ve just got no idea. But I generally know how they work and I can get them to go. But I don’t like technology; I’m not one of those engineers who reads the magazines to find out what’s coming out. I can do a show, and the people will say, that was great, what kind of PA system is that? And I go, I actually don’t know. I’m just here to mix the band. I don’t care what kind of system it is. I can’t change it so what’s the point of knowing? I have an idea of what sort of systems I like but honestly, I’d be one of the worst engineers that’s working around the world as far as knowing about equipment and knowing how it works. As long as someone’s plugged in and it’s going, it’s fine. If I have to fix it I probably can get it going but honestly (personal communication, 3rd February, 2006).

Simon, another free-lance sound engineer suggests that technophobia is an issue for younger generations of men today, because young boys are not encouraged to be technically inclined as much as previous generations of
boys. The masculine norm of technical aptitude continues to govern their behaviour, in that they must conceal their technophobia from others. This resonates with an earlier statement from Natasha about the ‘duplicity’ of her male students who felt compelled to appear to know how to operate a console even though they did not. Simon questions the naturalisation of discourses of sexual difference in technical ability.

Simon

I think the truth is in fact that … more and more these days its less and less the case that young boys are reared by their dads in the garage, and that in fact guys increasingly are also technophobic. But they have this social demand on them to not be, so women are maybe more likely to confess, as if it’s a sin. You know, like, that’s often delivered in apologetic terms (personal communication, 18th May, 2005).

It is evident that the gendering of relationships between sound engineers and the sound technologies they employ is more complicated than sound engineers typically conceptualise it to be. Some women in sound engineering describe themselves in ways that suggest they are very compatible with the technical demands of the job. In contrast, a number of male sound engineers, some of whom have professional jobs in the industry and/or mix well-known bands, indicate that they are not confident with technology but that they have consistently found it challenging. These descriptions resonate with Michael Kimmel’s suggestion that masculinity is an ideal that men cannot live up to; that even those men who would most seem to encapsulate an ideal masculinity do not always experience themselves as congruent with the ideal (Kimmel 1996, p.285). Technical confidence and technical aptitude, it would appear, are discursively produced as masculine in ways that contradict the breadth and variation of experiences of male sound engineers. Previous research into the intersection of gender with music technology is flawed: Bayton (1989, 1990, 1997, and 1998) and McCartney (1994) fail to problematise
the myths of masculinity that are so reductive of male experience. Instead such literature tends to perpetuate the easy but misleading equation of maleness with technical ability.

The existence of the technically confident woman engineer and the male engineer who second-guesses his technical skills resonates with Judith Butler’s (1990, 1991, 1993) views on the social construction of gender. I have considered Butler’s argument in depth in section 3.3.2., but to briefly recapitulate, she views gender (and sex) as normatively produced through performance. The performance of gender is imperative, gender is always performed, whether consciously or unconsciously, and it is through this compelled performance that we are constructed as subjects. We may not be at liberty to perform gender any way we choose: each performance is the citation of a norm of masculinity or femininity (Butler 1993, p.13). But it is within this performance that the gender norms may be challenged: for each instance of performance is merely an approximation of an ideal – it is not the ideal itself but merely a citation of it. As a citation, it may be a faithful approximation or it may not. Either way, it is still the citation of a norm, but even so, unfaithful citations of the norm have the potential to reveal the contingency of the norm. Such is the case in sound engineering. The discourses of sexual difference position women as less suitable for sound engineering work because they are thought to be technically inept, and they position men as ideal sound engineers due to a belief in men’s technical capabilities. These norms are continually cited through the gender performance of sound engineers. But some iterations of the norm are unfaithful, such as those of women who are technically confident, and men for whom technology is daunting. These citational performances cannot help but reference the predominating gender norms, but in doing so unfaithfully,
they expose the norm as a norm - not a natural biological fact but merely a social construct.

I will now consider in more depth a discourse of technology that may empower individuals, and women especially, to seek sound engineering skills. The discourse is widespread, and indicates the contradictory attitudes towards women and technical skill in the industry.

4.5.3 Technical Confidence as Learned

In this section, I demonstrate that the discourses of sexual difference in technical skill are tenuous. Using many quotes from men and women sound engineers, I argue that sound engineering is a set of connected skills acquired through learning. Though learning styles differ among individuals, it becomes clear that there is nothing inherent to sound engineering that requires a masculine-gendered individual to perform the tasks. In actual fact, the skills associated with sound engineering are available to all able-bodied people, provided they are ready and willing to learn them. Men as well as women must learn these skills if they are to become competent sound engineers. The testimonies of numerous women demonstrate that through perseverance, they can become sound engineers. Male respondents also characterise sound engineering as learned, undermining the notion that men are naturally endowed with technical abilities. It is plausible, then, to suggest that there is no biological reason for women to be deterred from the vocation by its technical demands, and no biological reason why men in professional positions so vastly outnumber women.

Sandra

I tend to learn things pretty quickly, if I get given a new thing, if I have to learn it I’ll learn it. Probably more so than [my partner] and that’s why he doesn’t like computers,
he’s not into all these other things … If somebody tells me something and I can understand it, then I can then go to whatever it is and do it (personal communication, 9th December, 2005).

By studying audio engineering, Sandra learned many of the basic principles of sound work that boosted her confidence. She characterises herself as a fast, aural learner.

**Bronwyn**

I’ve always been quite a confident person, and not for any good reason, it’s not like I thought I was really good at anything, because I wasn’t. In the beginning I really didn’t understand and all I wanted was to get my money’s worth. I was like, I’m coming to this place to learn, if I can’t understand what they’re talking about then I have to ask. Otherwise I just won’t [learn]…Once I got my confidence up, when I made my place in the class right at the beginning at the front of the class, not right at the back, I’d just be putting my hand up whenever I didn’t understand something (personal communication, 19th May, 2006).

Bronwyn believed that, as a student of audio engineering, the onus was on her to take whatever knowledge she could get from the educational experience. She learned a great deal by asking questions in class if she did not understand the course material. Her experience was intimately connected with the issue of confidence.

**Miranda**

From a technical aspect I found working with all the gear sort of like the electronics and all that sort of side of things and the physics and that, that took me a little bit more to think about it, because its not some of the things I’m that familiar with. Like working with computers, I wasn’t as familiar with that as some of the young guys who were all on computers from when they were quite young and you know, they’ve got sound programs at home and they’ve already kind of sussed a lot of that stuff. But really, once you just learn it, it’s quite straightforward. I mean there’s a lot to learn but if you’re
interested and you apply yourself anyone could have a go. I found it fun (personal communication, 1st July, 2005).

Even though she suspects she is not as computer savvy as her younger male peers are, Miranda believes that through genuine interest and hard work, anyone can learn about audio. She sees herself as exemplary of this and found study in audio engineering rewarding.

William
You can learn, and that’s what I tried to teach people on these courses, was just with little things, trying to teach people that they knew that they could plug things together and do all this clever stuff, because the heart of any sound system in any studio is the mixing desk. They look huge, the ones you see in pictures are huge but they’re actually really simple. When you get a little one that has all the features of a big one, all you’re doing is trying to teach people on the little things, lets take it down to this size here, and you’re going to send some sound off to this place and you’re going to send some sound off to that other place and then bring some of it back in again, and then you’re going to put all of it here. Once people realise that they can understand how things are routed through this desk (personal communication, 2nd February, 2006).

William explicitly characterises sound engineering as a teachable, learnable skill and that the secret to learning how to connect equipment up and direct sound signals is to begin on a small mixing console. This gives a student the basic foundations of sound manipulation so that they can later apply the same principles on any mixing console, regardless of size.

Sarah
I don’t think there’s anyone who couldn’t do it if they tried. I guess there are some people who are more inclined toward that sort of thing than other people but I think it’s pretty much like anything. If anyone puts their mind to trying to work out technology, to work out a computer or anything, they will be able to do it if they think they can and just go and make the attempt (personal communication, 18th May, 2006).
Regardless of whether someone is interested in technology, Sarah believes they can figure out how to use it. She characterises it as a matter of having enough self-belief to try.

A great number of sound engineers who confess to not be deeply fascinated by technology have acquired sound engineering skills. Technical skill is not a prerequisite for sound engineering but can be attained through practice. Some engineers emphasise self-belief. When an individual has enough self-belief, they can learn about sound technology and develop skills. Others recommend reading operation manuals to enhance one’s background knowledge of electronic equipment.

4.5.4 Apt or Inept? The Problem with Dichotomies of Technological Skill

Previous studies of women’s relationships with music technology suggest that music technology is gendered in a way that marginalises women who would otherwise hope to excel in vocations such as electroacoustic composition or rock music. According to McCartney (1994, pp.81-82), McClary (1991, p.138), and Bayton (1989, pp.157-158), from a young age, females are not encouraged to experiment with technical toys and tools to the same extent as boys. As a result, males continue to dominate areas of musical activity that rely heavily on technology, such as electroacoustic composition and rock musicianship. Women who decide to pursue such artistic forms are disadvantaged by, among other factors such as sexism in the industry and masculine technical imagery, their technical reticence, as a result of their different socialisation (McCartney 1994, pp.81-82). In contrast, it is presumed that men find they are quite at home in musically technical pursuits, and continue to consolidate their technical confidence. However, I have shown that the equation of men with technical confidence and women with technical reticence fails to encapsulate the varied and complex experiences of women
and men in sound engineering work. I question an approach to studying women and music technology that relies heavily on this dichotomy, as it unintentionally upholds the discourses of sexual difference it seeks to dislodge.

In her investigation of women’s participation in rock music making activities in Britain, Bayton concludes that the masculine gendering of music technology is a significant barrier to women.

Firstly, both technophobia and an aversion to male-defined and male-designed instruments act as a barrier to women’s involvement in rock music. Moreover, the whole world of sound recording is perceived as male and therefore alien (Bayton 1989, p.22).

The world of rock music is alienating to women because of its perceived masculinity, consolidated in part by its association with technology. This association begins with childhood socialisation:

Boys get given technical toys; girls do not. Boys’ informal learning, in the home and amongst their peers, breeds a familiarity with, and confidence in, all things mechanical, technical and scientific. Research in the particular field of gender and science education indicates that girls fear technical equipment, whereas boys do not. Boys dominate the experiments whilst girls fall into the wait-and-watch role. The image of science is ‘male’ and thus all associated with it is seen as ‘male’. Thus, it could be that girls are frequently drawn towards rock instruments, but are put off by the multitude of electronic and electrical components, which are a basic requirement for a rock performance: leads, plugs, amplifiers, plug-boards, etc. Many of my interviewees mentioned this. But, afraid or not, these things are strongly defined as masculine. They must therefore be eschewed by the young woman who wishes to preserve her femininity. Furthermore, boys typically get involved in rock music-making in their early teens and this is exactly the age at which girls are under great pressure to establish their gender in the eyes of their peers’ (Bayton 1989, pp.157-158).

Bayton emphasises the masculine gendering of rock music equipment, and technology in general. She characterises women as technophobic, as fearing technology, identifying this trait in a number of her respondents. This
association between men and technology, especially music technology, contributes to women’s unwillingness to compromise their femininity and play rock and roll.

Bayton (1989) and McCartney (1995) provide numerous examples of the ways in which women are disadvantaged by the masculine domination of musico-technical spaces. They also question the neutrality of ideologies of sexual difference that permeate the music industry. However, the invocation of socialisation theories may serve to further entrench the very dichotomous conceptualisations that they seek to overturn. By relying upon the notions of technical competence and technical reticence, and applying them to men and to women respectively, such studies contribute to the continuation and naturalisation of such ideas. In effect, Brown and McCartney reproduce the very discourses of sexual difference, albeit inadvertently, that normalise music technology as a masculine domain.

It may be argued that McCartney’s discussion of imagery of technology used by women electroacoustic composers overcomes the dichotomy of feminine technical reticence and masculine technical confidence. In its place she constructs a clear delineation between masculine musico-technical imagery and the imagery for technology employed by women electroacoustic composers. Women, she suggests, use different language to discuss technology than do men. While masculine imagery of music technology emphasises war, power, control, domination, violence, and sex, women electroacoustic composers also speak of sex, but in contrast, they use drug, reproductive, nature, cosmic and dance metaphors to describe their relationships with technology (McCartney 1994, pp.46-80). She quotes Phyllis Rooney, who states: ‘one of the most effective ways to uproot a metaphor is to replace it with another one’ (Rooney 1991, in McCartney 1994, p.75). Although
McCartney is justified in critiquing the dominant imagery applied to technology in the music industry, I contend that replacing what she characterises as masculine imagery with feminine imagery reduces men and women to polar opposites and essentialises gendered subjectivities, and ultimately invokes a new set of discourses of sexual difference that govern subjectivity in the music technology domain.

A focus on alternate discourses, those that disrupt the dominant discourses that position women and musical technology as incongruous, overcomes this dilemma. While one must to some extent reproduce the discourses of sexual difference in order to critique them, this problem can be mitigated through an examination of those alternate discourses that avoid naturalising one set of activities for men and another set for women. Alternate discourses of the sound engineering subject, such as those that acknowledge male technical reticence as well as female technical confidence, and an emphasis on sound engineering skills as acquired through study and experience, demonstrate the contingency of the dominant discourses instead of simply reproducing them. In addition, we might also recognise the complexity of sound engineers’ accounts of their relationships with technology. Rather than positioning sound engineers as either technically reticent or technically confident, we might concede that sound engineers’ relationships with technology are often multifaceted, where they express confident and reticent attitudes simultaneously and/or emphasise sonic technological skills as learned.

Bronwyn’s experience in sound engineering illustrates this complexity, emphasising the point that individual sound engineers employ multiple discourses to describe their relationships with technology, instead of positioning themselves as either only confident or only reticent.
Bronwyn

It was completely foreign to me. ... My first three weeks I was despairing because I was finding it really hard to come to grips with the whole physics, and mathematics and all this stuff that I’d left behind at high school. It was like, oh god; this is really freaking me out ... I’d go home to my boyfriend and go, I don’t understand, and he’d go, you can do it! I would go, no, I’m going to drop out. I thought about it for a week, I was like, everyone else seems to understand, and then I started talking to people, and they were like, I totally don’t know what they’re talking about.

I felt a bit ashamed in the beginning, I’d think, it’s because I’m a girl, but then I thought, that’s bullshit. Maybe these guys have a chip in their head that helps them understand better but then I realised that I was on exactly the same page as most of the guys in the class. So it was quite difficult, going to studios and looking at this gear and seeing all these knobs and buttons and just going, I totally didn’t take in that last lecture, I need some help. I’d end up asking someone when we got to class, and we’d work together and we’d figure things out. Sometimes I’d help them and they’d help me, and I think it was a really nice way to work.

I’ve always been quite a confident person, and not for any good reason, it’s not like I thought I was really good at anything, because I wasn’t. In the beginning I really didn’t understand and all I wanted was to get my money’s worth. I was like, I’m coming to this place to learn, if I can’t understand what they’re talking about then I have to ask. Otherwise I just won’t [learn]...Once I got my confidence up, when I made my place in the class right at the beginning at the front of the class, not right at the back, I’d just be putting my hand up whenever I didn’t understand something. I suppose I was a bit of a ringleader, I don’t know why (personal communication, 19th May, 2006).

Bronwyn characterises herself as a confident person, despite her initial difficulties in learning to understand the physics of acoustics in the sound engineering classroom. Once she realised that she was not alone in her struggles with the principles of physics, she worked with other students to improve her understanding. For Bronwyn, confidence with music technology is achieved alongside the acquisition of sound engineering skills. Experiences
such as Bronwyn’s are not so easily relegated to technical reticence or technical confidence, but show elements of both. Similarly, Adam’s experiences do not fit neatly into either one or the other dichotomous category:

**Adam**

I think I started earlier on my interest in music, when I was about 12, I had a little radio and I started connecting speakers up to it. For some reason we had some speakers lying around the house and I joined the speakers up and I found that I could get bass out of this tiny little box radio. That’s when my interest in music really started. I started recording in I guess about 1988 when I got my first real set of drums. I used to record; I used to put the microphone in different places around the house. Through different doorways with the doors open, certain places trying to get a better sound, get a more authentic mix.

[The course] was a studio one so I think it was beneficial, just inasmuch as overcoming my lack of confidence in my own ability. It was good to experience that. Because I conquered that by getting my own equipment and figuring out how to do it and then producing stuff later on. So it was definitely useful. Even just to come up against that barrier for myself (personal communication, 29th June, 2005).

Adam, a freelance sound engineer, has been recording his drums ever since he purchased them some years ago. He trusted his own ability enough to record drums himself, experimenting with microphone placement. However, his negative experience in a sound engineering course spurred him to buy more equipment and experiment without instruction, and it was only then that he developed his technical confidence. Like Bronwyn’s example, Adam’s story demonstrates that technical reticence and technical confidence need not be mutually exclusive experiences, and by pointing to the variability and nuances of their stories, one further exposes the male-technical confidence, female-technical reticence discourses as contingent, socially constructed, and
finally unable to encapsulate the complexity of experiences that sound engineers have with technology.

4.5.5 More Than Just a Technician: The Multiple Skills of the Sound Engineer

As has been shown, sound engineers often explain women’s under-representation in the field by referring to a perceived incompatibility between women and technical work. But sound engineers are not merely technicians. Success as a ‘soundy’ depends on the use of other crucial, non-technical skills, some of which are perceived to be gender-neutral, others widely considered feminine. Sound engineers tend to emphasise that musicality (which they broadly define as being able to understand music, a skill not exclusive to musicians) and interpersonal skills are equally important in ‘good’ sound engineering.

Sound engineers are almost unanimous in stating that good sound engineering relies on three sets of skills. These skills are technical ability, interpersonal skills, and musical understanding or creativity. I have selected a number of succinct quotes that illustrate these points.

Rebecca

I think as an audio engineer you need to be understanding of music, and be a creative person and be able to mix that with this technical aspect. That seems to be the way that I’ve achieved in that area because I’ve mixed the both together, as opposed to just coming from a completely technical side, and going, ‘Right, this is the best microphone to record this, right, do that, put that on right angle, rah di rah di rah.’ For me it’s not really like that. Its like you have to be creative and you have to be technical at the same time. And I think the best audio engineers are like that.
It’s just really important to keep the communication going and just create a nice environment for people. I reckon that’s one of the most important things, yeah to be able to be a people person, which is really weird because you wouldn’t think so. But you know, you’re dealing with artists! So I don’t want to make a big artist stereotype but a lot of them are doing stuff that’s personal or really important to them and you really need to respect that (personal communication, 20th June, 2005).

Rebecca emphasises that creativity is just as important as technical skills for audio engineering, and sees creativity as one of her personal strengths as an engineer. Engineering sound on other people’s musical projects requires good communication skills and a pleasant demeanour. Sensitivity is crucial for interacting with musicians as they often view their music as an expression of self.

**Brett**

There’s the technical ability, the musical understanding and the people skills. I think probably all three of those things have got to come together to some degree. I know sound engineers with no people skills and they’re wicked sound engineers but they’re only ever going to have a couple of people who want to use them because there are only a couple of people that’ll be able to put up with that, and that’s fine; they’ve got their niche there. There are also engineers who people will always work with because they’re always really laid back and they feel really comfortable with them, and maybe they don’t record or mix as well as some other people (personal communication, 15th December, 2005).

Creativity, interpersonal skills and technical ability are all key components of sound engineering, according to Brett, but each sound engineer has different strengths that will appeal to different clients. Some clients will prefer a highly creative engineer or a technical expert, while others will only work with a sound engineer with excellent interpersonal skills.
Ben
But I think you do need a good understanding of music. Most of my understanding of music was gotten from listening. I’ve been a good listener of music ever since I was a teenager. I think that even some musicians are not good at listening because they don’t have a good understanding of how a song goes together and they may be proficient on an instrument or two, whatever, but they don’t know a lot about how the sound all fits together in the mix, whereas someone who listens to a lot of music often has a better idea of that. But most musicians will gain that if they want to, quite easily. I think they often make much better mixers. Because they don’t care about what the meters are doing, they just listen, and really that’s what it’s all about.

All of the types of listening make a good sound engineer. Listening to what the musicians want is very important, and if you want to be a good sound engineer over a wide range of types of music and situations then you need to listen to what people are attempting to get as far as the sound is concerned. It’s a service industry, you’re a service person, and you’re providing somebody with a service. Understanding that service is is very important, and understanding what it’s like to be the musician on stage and what they need. A lot of that took me a long time to understand (personal communication, 19th December, 2005).

It is Ben’s personal belief that the best sound engineers excel in two kinds of listening: musical listening, and listening to clients. The ideal engineer, according to him, is not necessarily a technical expert or a musical expert, but one who listens to a lot of music and understands how sounds fit together. It also involves listening to clients and understanding what kind of sound they desire, and providing that sound for them.

Lucas
It’s definitely creative. It’s fundamental. I mean at the end of the day you can only mix what the musicians give you. But you are doing just that, you are actually presenting a mix of what’s happening onstage. Without the sound engineer it’s going to sound like shit. It’s pretty fundamental.
I’ve met guys who’ve got an attitude problem and they’ve got a chip on their shoulder and they’re all about power. But then again if you’re like that, you don’t get a good result out of musicians. So the best results in the studio or live are from a team, where the musicians and the sound engineer are working together, where there is no ego, you’re each working together as a team and you get on well. Wherever you find there’s this sound engineer who’s got this thing, whatever it is, it’s never a good result generally in my experience (personal communication, 23rd May, 2006).

Again, creativity and interpersonal skills are fundamental, according to Lucas. He emphasises that a live mix is a representation of ‘what’s happening onstage’, and that it is not actually what the music sounds like onstage. Interpersonal skills come into play because they enable an engineer to encourage musicians to perform at their best: when a musician is comfortable, he/she will play well. He implies that the optimal situation in a recording studio is one where the musician and sound engineer have reached a consensus on what they hope to achieve sonically. For this to happen, a sound engineer must be able to transcend his/her ‘ego’.

**Helen**

You’ve got to be so diplomatic to be a good producer. But then I’ve co-produced stuff and that’s worked really well. I worked with [a musician], and she had a male producer come in, and he did all the arrangements, arranged all the backing vocals, picked all the session musicians, and I just engineered it, and it was like bliss, it was so cool. Then once it came time to mix, he threw the whole mix over to me and said you mix it, do your best. I was like, I love you! This is awesome! So it was fantastic. So he produced it up until it was tracked and I finished it off. That was a really nice arrangement and they just left me to it.

DS: So do you feel in that position that you have more creative input?

Helen: Yeah I really like mixing. Because you can take a slack kind of dull song and give it a real groove and really make it happen. But vice versa, you can take a really great song and kill it just by overmixing. It’s like painting, some artists just can’t stop, they just keep going. It’s the same with mixing. You can actually completely mix the life out of things (personal communication, 5th December, 2005).
Helen talks about engineering from a musical production position, and underscores the importance of tact on the part of the producer. She believes creativity is important, but cautions that creativity needs to be tempered to avoid what she calls ‘overmixing’, which can detract from the quality of a song.

On the whole, sound engineers do not view musicality or interpersonal skills as gendered. Of course, there is no reason why one’s musicality or interpersonal skills would be dependent upon one’s gender. But equally, there is no reason for other essentialist assumptions about women and technology. What is noteworthy is the absence of discourses of sexual difference in reference to these skills, especially considering women tend to be over-represented in service occupations that rely to a large extent on interpersonal skills and the performance of particular kinds of what Arlie Russell Hochschild refers to as ‘emotional labour’. If sound engineers tend to essentialise technical skills as largely the domain of men, the insistence on interpersonal skills as gender neutral indicates a logical inconsistency. This logical inconsistency allows male sound engineers to exercise their interpersonal skills whilst maintaining their sense of masculinity. It also enables sound engineering to continue to be dominated by men, with no threat of feminisation of the occupation. As we have already seen, it is not the only instance of logical inconsistency operating in sound engineering with regard to gender: the belief that women want theoretical understanding and men practical knowledge of technology also runs counter to received wisdom about gender but this goes unremarked upon in sound engineering. It is testament to the strength of the masculinisation of the occupation that the ‘nurturing’ and ‘bodily’ skills required are perceived to be as masculine as the

I addressed Hochschild (1983) and emotional labour in section 3.4.2.
heavy lifting and the technical know-how, when in wider society they are
deemed feminine.

The masculinisation of sound engineering is also upheld in music trade
publications and popular music magazines, by associating women with
machines and men with control over the machines. The following section
illustrates this discursive inequality, and leads me to a critical reassessment of
the effectiveness of cyborg theory for combating gendered norms of
technology within popular music production.

4.5.6 The Woman Machine: Cyborg Discourses of Sexual Difference
One common approach to previous feminist research about tensions between
gender and music technology has been the application of ‘cyborg theory’.
Cyborg theory, as explained in Donna Haraway’s influential article ‘A Cyborg
Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth
Century’ (1991) is argued to be a fruitful frame for conceptualising an
empowering relationship between women and music technology. The cyborg
encapsulates an acceptance of the human position of being already
technologically engaged, and suggests that however ambiguous a position
this may seem, the way forward for women is to embrace this coupling. It
would appear that women musicians are already doing this (McCartney
1994). But the question of whether images of cyborg women in musical
discourse are always empowering requires some reassessment. At first glance,
cyborg theory may appear as an ideal theoretical and conceptual tool for
explaining the presence of women sound engineers in popular music
production, as they are manipulators of the music technology interface.
Indeed, numerous musicologists have drawn on the cyborg metaphor to
imagine women as music technology experts. I show that the prevalence of
cyborg feminism in feminist musicology is based on a misreading of
Haraway’s work, and this misreading allows for more sinister and sexist cyborg images to circulate within musical discourse unnoticed.

In this section I describe previous deployment of cyborg theories in musicology, and examine some discourses of gender and technology as they appear in a New Zealand music magazine. I chose to focus on New Zealand Musician magazine knowing that it is a circulation read by New Zealand musicians and New Zealand popular music industry personnel alike, including sound engineers. It includes features on and interviews with New Zealand musicians, but more importantly it features regular reviews of new music equipment, including mixing consoles, electrical instruments, effects units, sound software and synthesizers. For this reason it is an important medium for both professional and amateur sound engineers who wish to have the latest information about music technological developments. It is fair to say, given its importance as a conduit of information for music industry personnel as well as its wide circulation, that the NZM is an influential purveyor of discourses and imagery that help to construct and maintain gender relations in the music industry. Analysing the gendered imagery within NZM magazine can tell us much about who is considered musically and technically capable in the production of New Zealand music, and who is not.

This analysis will yield an image of the cyborg as not altogether as worthy of feminist affirmation as previously suggested, because it can readily be deployed in ways that designate control over technology as a male preserve. For this reason, I urge a more cautious approach to evaluating the utility of cyborg theory for feminist musicology. In the case of women sound engineers, given the preponderance of sexist cyborg images within musical discourse
that emphasise male power and female subordination, I am hesitant to apply the cyborg metaphor.

The cyborg was first articulated as a meaningful possibility for feminism in 1985. Its advantages were many in that it reflected the contradictory situation for feminist theorising in the late twentieth century, as well as suggesting possibilities for future feminist thought and action. Poststructuralist thought had made autonomous and coherent conceptions of the self untenable, and it had deconstructed many of the binary oppositions that had hitherto underpinned Western philosophy.

Poststructuralist thought problematised feminism too. For surely, it was now difficult to conceive of an unproblematic category ‘woman’ that did not invoke a series of gendered binary oppositions as well as a fixed notion of subjectivity. But to do away with this identity category ‘woman’ on the basis that it was too problematical would leave feminism, a movement for women’s emancipation, bereft of its political impetus. The cyborg, described by Haraway (1991), was an apt metaphor for the ambiguous position of ‘woman’ and subjectivity in general, in that it represented a subject position that spanned boundaries of self and other, of human/animal and machine, of science fiction and of social reality. Haraway writes:

This chapter is an argument for pleasure in the confusion of boundaries and for responsibility in their construction. It is also an effort to contribute to socialist-feminist culture and theory in a postmodernist, non-naturalist mode and in the utopian tradition of imagining a world without gender, which is perhaps a world without genesis, but maybe also a world without end (Haraway 1991, p.150).

Haraway argues that where the cyborg affirms pleasure in the uncertainty of boundaries, the cyborg has special significance for feminist thought.
What is particularly significant about the cyborg metaphor is that it is conceived as ‘resolutely committed to partiality, irony, intimacy, and perversity. It is oppositional, utopian, and completely without innocence’ (Haraway 1991, p.151). At the same time, it can never truly attain autonomy, as it is always to some extent indebted to its capitalist, patriarchal and militaristic origins. Haraway believes that these origins need not dictate the trajectory of the cyborg, for as she explains,

The main trouble with cyborgs, of course, is that they are the illegitimate offspring of militarism and patriarchal capitalism, not to mention state socialism. But illegitimate offspring are often exceedingly unfaithful to their origins. Their fathers, after all, are inessential’ (Haraway 1991, p.151).

Instead of doing away with the cyborg because of its patriarchal capitalist taint, the challenge for feminism is to embrace the cyborg despite this, as there is valuable insight to be gained from its contradictory position as product of consumer capitalism and oppositional utopian figure. What the cyborg can reveal, bridged as it is between these opposing worldviews, is ‘both dominations and possibilities unimaginable from the other vantage point’ (Haraway 1991, p.154).

The cyborg does not entail an uncritical, technophilic embrace of the technological ‘progress’ spurred on by military development and consumer capitalism. Nor does it necessitate a technophobic rejection of advances in technology. Embracing a cyborg ontology means, as has already been noted, recognising the pleasure and responsibility that comes with such a contradictory subject position: the pleasure that technology can provide, as well as the danger, destruction and domination that it promises. The cyborg is in the ideal position to adjudicate technology’s dangerous and pleasurable possibilities, and provide responsible solutions. Haraway’s concluding remarks are explicit in their rejection of technophobic conceptions of
technology and the embrace of a responsible and partial cyborg identity: ‘It means both building and destroying machines, identities, categories, relationships, space stories. Though both are bound in the spiral dance, I would rather be a cyborg than a goddess’ (Haraway 1991, p.181).

In Creating Worlds for my Music to Exist, Andra McCartney (1994) analyses three electroacoustic musical texts by Canadian women composers: A Silence Full of Sound by Wende Bartley; Breathing Room by Hildegard Westerkamp; and Woman and House by Susan Frykberg. McCartney asks if the compositions are examples of ‘feminist cyborg music’ making direct reference to Haraway’s ‘Cyborg Manifesto’ (McCartney 1994, p.232). Insofar as ‘the cyborg is committed to partiality, irony, intimacy, and perversity…is oppositional, utopian, and completely without innocence’ (Haraway 1991, p.151), all three compositions meet the feminist cyborg criteria. Consolidating this claim, McCartney eloquently writes:

> From the dominating discourse of electroacoustic technology, these women composers have created sounds that reverberate, coming from that discourse, yet, like echoes, changing in the process of reverberation, mocking each iteration, creating a life of their own, like hosts of alien beings. They create worlds in which mind does not have to subjugate body, where tensions may begin with self vs. other, but transform into attempts to defy boundaries, to find voices, to integrate selves, and to establish intimacy (McCartney 1994, p.236).

This is much like Haraway’s boundary-breaching cyborg, which fuses body and mind, self and other, in a human creation that indeed has the capacity to surpass its militaristic, patriarchal progenitors.  

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22 Leslie C. Gay Jnr makes a similar point about female bass players in New York rock bands, arguing that they are cyborgs because they “adapt, exploit, and transform the technology and its cultural meaning for themselves” (1998, p.90). Compare Clawson’s (1999b) assertion that women’s relationship to bass playing can at best be regarded as ambivalent.
But the cyborg apparent in McCartney’s discussion of Canadian feminist electroacoustic composition is not the only cyborg at play in her thesis. Another cyborg lurks unacknowledged in her work, and this cyborg is not nearly as empowering and deconstructing as the other. This anti-feminist cyborg surfaces at times in McCartney’s discussion of the gendered discourse of technology in music technology trade magazines.

The features and advertisements in music trades’ magazines (Keyboard, Electronic Musician, EQ, and Musician magazines from between 1991 and 1994) were particularly revealing in terms of gender symbolism. Metaphors of sex, violence, control, domination and mastery help to define the readership as masculine.23 Men are overwhelmingly present in the magazines too. Women are seldom mentioned and when present they are usually depicted in ways which question their technical competence or are sexually objectifying. This content may well reflect the views of the music industry more than the readership, suggests McCartney. While letters to the editor reveal similar imagery, certain readers express discomfort with it, though editors tend to dismiss such complaints (McCartney 1994, pp.52-61).

I would argue that the trades’ magazines discussed by McCartney are purveying cyborg images, but they are very different from the empowering, playful cyborgs envisaged in ‘feminist cyborg music’. And why wouldn’t they be? If the cyborg is a figure of ambiguity and contradiction, the progeny of patriarchal militaristic capitalism, there is no guarantee it will eschew its origins for an enlightened, feminist path. The cyborg that lurks in these gendered images is problematical, for it defies the boundaries of human and machine, masculine and feminine, mind and body, only to reinscribe these categories. The images suggest a male human appropriating a feminine

23 See section 3.4.3. for my critique of the view that power and control are gendered masculine.
machine in order to wreak havoc and destruction on bodies, on nature, and on the passive, feminised machine itself. These images are no less cyborg than McCartney’s feminist cyborgs; the difficulty is that, unlike Haraway’s utopian vision, these particular cyborgs are interested only in the pleasure in sexual violence, destruction and domination. They have no thought for ethics or for responsibility.

Technologies appear in a feminised, highly sexualised form in Thomas G. Porcello’s (1996) doctoral thesis, and like the technical imagery from music trade magazines that McCartney analyses, they are cause for concern. Porcello compares print-through from reel-to-reel tape to ‘a kind of striptease (music, the body, dance, sex, and all that), a miniaturised, partially hidden glimpse of the musical text to come … echoes that to me are sensual’ (1996, p.3). In this passage, the pleasure Porcello takes in the ghosting effect of print-through is likened to a stripper’s performance, where (typically) a female stripper performs a commodified, sexualised dance for a (typically) male audience. In another passage, Porcello anthropomorphises an electric sound signal: ‘we want you brighter, but with a rounder bottom. We joke about you, anthropomorphise you, sexualise you, humiliate you, praise you, caress you, make you a slave serving our aesthetic ends’ (1996, p.12). While he self-reflexively admits to anthropomorphising the sound signal, the fact that he anthropomorphises it as a servile and sexualised female gives him no cause for critical reflection. The feminisation of technology in his work is surprising, given that he is concerned with discourse analysis. However, this only demonstrates that discourse analysis undertaken without a feminist normative framework can easily recirculate discourses that exaggerate sexual difference, reproducing a divide between the female machine and the male engineer who exercises power and control over ‘her’. In the end, ‘cyborg’ status is reserved not for Porcello’s feminised technologies but for the audio
engineer\textsuperscript{24}, which he exclusively refers to using male pronouns.\textsuperscript{25} It would seem there are two classes of machine/human hybrids at play: the superior males and the inferior females – this gendered stratification might have been successfully avoided had Porcello investigated Haraway’s cyborg theory. Nonetheless, his deployment of the feminised machine metaphor illustrates my point that not all cyborgs are equal. Some cyborgs function in a decidedly sexist manner. Cyborg theory should be adopted within musicology with extreme caution for this very reason.

My own research led me to examine issues of *New Zealand Musician (NZM)* magazine, from Volume 10, issue 2 (April/May 2002) to volume 13, issue 4 (February/March 2007). I chose to cover five years of issues of *NZM* magazine because an analysis that stretches over a significant time span would be likely to reveal any changes in the gender symbolism. My goal was to ascertain the kinds of gendered symbolism used in reference to music technology, and to explore the depictions of men and women.

An exploration of some of the advertisements and technical reviews in *NZM* revealed some interesting attitudes and stereotypes of gender. In some reviews, a male audience is implied in ways that women readers could find alienating. For example, in a 2007 issue, Mark Bell reviews the ENGL Powerball Tube Amplifier, stating, ‘None of that furtive creeping up the volume in the backroom while the wife’s at the mall business, this amp deserves to be let off its leash’ (Bell 2007, p.17). Later, he speaks of how the amplifier makes him feel, that it has a ‘similar effect on a guitarist to an ugly, rich bloke walking around with a mega-babe on his arm’ (Bell 2007, p.17). The

\textsuperscript{24} Jennifer Brown also sees the audio engineer as a cyborg (1995, p.53), but goes no further in theorising this.

\textsuperscript{25} Indeed Porcello includes a disclaimer about his use of male pronouns to designate audio engineers in his study, acknowledging gender discrimination within the occupation. I contend that his use of the male pronoun unwittingly reinscribes gender inequality within the occupation.
implication is that wives and mega-babes would not be using this musical equipment. Music equipment is for rebellious guys to bring out while their wives are at the mall, like an unleashed dog, or perhaps a mistress. It is for men who want to feel like they possess something that other men will envy them for, like a conventionally attractive woman. Whether or not it is appropriate to liken amplifiers to dogs or women is an issue that Bell does not address, leaving women readers to identify themselves in his text at best as sexist men who are legitimate purveyors of rock, or as mall-shopping wives who just do not understand rock music, and at worst as inanimate objects that confer social status to their bearer. Elsewhere in the review, powerful metaphors of sex, rebellion and violence are used to convey the effect the Powerball Tube Amplifier has on sound, for example, ‘got the most action’, ‘gutsy rhythm sound’, ‘smack-‘em-over-the-head outburst’, ‘eats others for breakfast’, ‘steel mesh grill that wouldn’t look out of place on a prison cell door’ (Bell 2007, pp.16-17).

Another review, this time of the SWR Working Pro 700 Bass Amp and 4x10 Cabinet, takes the metaphors of sex and violence to disturbing extremes. We learn early on in the review that the author has explicitly gendered this amplifier and cabinet as female. ‘One of those nice girls, is she?’ Todd Beeby asks rhetorically:

To my dismay she just disappeared behind the drums and guitar! ...Come on girl, talk it up! I played around with some of the settings to try and see if I could get some more volume out, but she wouldn’t have it. So I decided to give her a bit of a kick up the arse with the trusty ol’ Sansamp... (Beeby 2006, pp.16-17).

Beeby’s metaphor of amplifier-as-woman suggests that if a woman does not give you what you want then it is appropriate to assault her. To conclude the review, Beeby writes:

This girl is just a little too tame. At the end of the day, if you like them nice – then she’s the one for you and she’ll likely treat you well. But if you like bad girls – then
she’s gonna be an expensive night out and leave you unsatisfied… if you know what I mean (Beeby 2006, pp.16-17).

We do know what Beeby means. He is invoking the traditional sexual double standard for women to metaphorise the amplifier. Bad girls, it is implied, ‘put out’, and this is what makes them bad, whereas good girls are equally damned, but for being frigid. As with Bell’s review, it is only men who are addressed as readers. Women appear as pieces of equipment, to be assaulted if they do not cater to heterosexual male sexual desires. This is hardly a text designed to recognise women’s subjectivity and agency let alone to recognise them as a technically capable readership for music trade magazines.

One guitar company, Jackson, used the image of well-known porn star Jenna Jameson to advertise their products. Reviewer Daniel Young notes this with unnecessary delight in his review of the Jackson DKMGT guitar:

Checking out the Jackson guitar website I was greeted by a picture of porn starlet Jenna Jameson holding a Jackson guitar. After distractedly observing Jenna ‘modelling’ with a variety of different guitars, in a variety of different Jackson merchandise, I concluded that she is very talented (Young 2004, pp.30-31).

The image of a woman whose fame is derived from sex videos is used to sell guitars. Her appeal is to heterosexual males, the same group of consumers Jackson would like to appeal to. Again, women are not included as musicians and potential customers – the talent Young is referring to is purely Jameson’s attractiveness. But it is not only women in NZM who are excluded as readers because of this sexual imagery. The use of sexually suggestive women as ornaments, and the use of sexualised metaphors for women to describe the equipment itself functions very clearly to affirm and invite a particular kind of male readership, which is a heterosexual one. Young’s irrelevant evaluation of Jenna Jameson in his review of a guitar tells us that electric guitars are for ‘real’ heterosexual men, not women or gay men.
Music technology in NZM is often coded as a male preserve in seemingly benign ways. There may be a distinct lack of actual women featured in the magazine, but femininity is remarkably present. It is coded into musical instruments, such as the ‘Fat Lady 1’ Acoustic Guitar. Stan Malcolm’s review of the Larrivee L-03MHB Acoustic Guitar provides another example:

My first Canadian love affair had come to an end. We parted company this morning, although I took it harder than she did. I had to be cajoled to hand her back and it was with a very heavy heart that I closed the case on the Larrivee L-03MHB for the last time (Malcolm 2006, p.28).

Malcolm is quite revealing in his views about women guitarists when he asserts in a feature about four small acoustic guitars that one of the main reasons one would play an undersized guitar is if one is a girl (Malcolm 2007, pp.6-8). Despite the fact that electric guitars are generally smaller and easier to play than acoustic guitars, I found no review of an electric guitar that specifically acknowledged a female readership of electric guitar players. The implication is that all of those electrical components are just too confusing for the technically challenged female brain.

Metaphors of war and destruction are also used in NZM to construct a male readership. Feminist theorists have documented the ways that the military institution influences discourses of hegemonic masculinity (Wajcman 1991, pp.146-149). The military institution has also contributed significantly to the development of high fidelity audio technology, magnetic recording tape and electronic musical instruments (Read and Welch 1976, in Theberge 1997, p.34; Majeski 1990, cited in Theberge 1997, p.34; Malsky 2003). The construction of the NZM reader as masculine is evident when Aaron Coddell writes of the Boss GT-6B Bass Processor, ‘This bass effects processor gives any bass megalomaniac ultimate power in sound control. Become a force to be

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26 According to Wajcman (1991, pp.146-149), this masculine definition of the military has tended to overlook and trivialise women’s involvement in the military and war efforts.
reckoned with and blow the roof off’ (Coddell 2002, pp.22-23). Coddell’s use of language implies military dominance (‘a force to be reckoned with’) and bombs (‘blow the roof off’). It is not enough to simply have loud, powerful equipment, it must have the destructive force of the male-dominated military institution.

It is not only that technology is discursively constructed as feminine and under male control in NZM. Male musicians are featured much more frequently in its pages. I took a sample of a year’s worth of issues, 6 issues in total, from 2006 – 2007 and compared how often women musicians were featured with how often male musicians were. The results are represented in graph form in Figure 1 below.
Figure 1 (New Zealand Musician magazine, April/May 2006 – February/March 2007)

Women and Men Featured in New Zealand Musician Magazine

[Bar chart showing the percentage of male and female musicians featured in New Zealand Musician magazine from April/May 2006 to February/March 2007.]
Male musicians featured much more frequently. Male musicians made up the majority of musicians featured, as little as 71% in one issue and as much as 96% in another. The corresponding figures for women revealed that women made up as little as 4% and as many as 29% of all musicians featured. On average, across the 6 issues, male musicians made up 87% of all musicians spotlighted in NZM, with women representing a meagre 13%. The representation of musical activities in NZM’s advertising reveals gendered notions of which musical activities are appropriate for men and women. Men were more heavily represented in advertising (making up 85% of people depicted as musicians in ads across the 6 issues), and in a wider range of musical performance activities. The majority of women pictured in ads were shown, unsurprisingly, singing (62.5% across the 6 issues). One notable exception to the norms of gendered popular music advertising was SAE (The School of Audio Engineering) in Auckland. Their ads over this time frame either pictured no persons, or depicted men and women in a variety of technical positions. Their advertisements suggested their willingness to take seriously the gender discrepancy in sound engineering, by attempting to entice women as well as men to undertake audio education, through the representation of both in technical positions in ads. Staff members at SAE reiterated that they took the gender discrepancy seriously as well, and that it was a career they felt women needed extra encouragement to pursue.

New Zealand Musician conveys discourses of sexual difference, particularly with regard to music technology. These discourses of sexual difference are not as pervasive as in McCartney’s (1994) and Brown’s (1995) findings, where music technology magazines were rife with metaphors of sex, violence, control, domination and mastery. Nonetheless, as men make up the majority of musicians, engineers and reviewers in NZM, the masculinisation of the magazine is almost as persistent and pernicious. The gendered images in
reviews and advertisements construct a specific image of the cyborg, similar to the ‘lurking’ anti-feminist cyborg described in relation to McCartney’s work. Through these images, we can ascertain that women are not conceived of as a technically capable readership of *New Zealand Musician* magazine. This is a problem because, ‘hypodermic’ models of media control aside, the media have some influence over how we see each other and ourselves. If women are not represented in media as technically competent, as musicians or technicians, then there is less scope for us to imagine women in those roles, and for women to imagine themselves in those roles too. We must place partial responsibility with such publications for women’s continued marginalisation within sound engineering and the wider popular music industry.

The anti-feminist cyborg that lurks in McCartney’s work, in *New Zealand Musician* magazine and in Porcello’s thesis has resonances in art and advertising. Jennifer Gonzalez draws on a number of examples of gendered cyborg imagery in art and advertisements, making Haraway’s claim that ‘the cyborg is a creature in a postgender world’ highly questionable (Haraway 1991, p.150). For Gonzalez, the cyborg image cannot simply be appropriated uncritically as a paragon of feminist subjectivity. Not all cyborgs are feminist: for example, Kiddy from the Japanese *Silent Mobius* comic is an example of ‘contemporary (mostly male-produced) cyborg fantasies: a

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27 Barbara Bradby (1993) echoes this sentiment in her analysis of women vocalists in dance music, although she rightly contends that Haraway’s cyborg has potential for feminist research that aims to disrupt the man/culture, woman/nature alignment (pp.161-162). Armstrong (2001) found that female composition students find ample possibilities for embodying the cyborg by using computer technology to mediate and modify their singing voices (p.41). For an unambiguously celebratory take on women vocalists’ deployment of technology, see Dickinson (2004), who claims that Cher’s use of the vocoder “disrupts many traditionally held boundaries, such as the body (or nature) technology and human/android, and as such could be usefully claimed by feminists as empowering” (pp.168-169). This point is decidedly moot, given the evidence cited above that the feminisation of technology is not always empowering for women, and given that we must also consider the processes of production at work in the Cher example. Was Cher responsible for the decision to use a vocoder? Or was it her producer or her engineer’s decision?
powerful, yet vulnerable, combination of sex toy and techno-sophisticate’ (Gonzalez 2000, p.70). Cyborg images are not by their mere existence cause for celebration. Instead, they must be analysed in their complexity and detail in order to ascertain their character and determine which ideological function they serve (Gonzalez 2000, p.65). It is not that Gonzalez objects to the use of cyborg images, instead she suggests that not all cyborg images embody progressive views of gender, race and class. Further to this, the cyborg merely reflects the contradictions between self and other, sameness and difference, tensions that aptly situate contemporary human ontology. They do not ‘resolve this contradiction, nor do they – as yet – function as radical alternative’ (Gonzalez 2000, p.71).

I share Gonzalez’ hesitance to celebrate the cyborg. The gendered images of technology displayed recently in New Zealand Musician magazine confirm her view that cyborgs are not inherently transgressive. Although Haraway did not intend to argue that cyborgs are inherently transgressive, only that they potentially are, numerous musicological adaptations of her work appear to accentuate their subversive potential without critical attention to conservative deployments of cyborg metaphors, for example, when cyborg imagery is taken as transcending the body rather than as implying an inextricable relationship with it (Armstrong 2001, p.41). Cyborg images can be easily manipulated to convey traditional gendered norms; they are after all ‘reflections of a contemporary state of being’ (Gonzalez 2000, p.58). In addition to this, none of the women respondents in my study referred to themselves using cyborg imagery. In the realm of music technology, the cyborg is likely to function as a problematical discourse of sexual difference that reproduces and reinforces the systemic barriers for women in popular music production. Femininity and technical musical ability are implied through gendered imagery to be incompatible. In the absence of images of
women excelling in sound engineering roles, it is understandable that women have not entered the job in greater proportions. There are ample barriers in place to them being imagined, and imagining themselves as sound engineers, when so much of the imagery and discourse aligns men with control and manipulation of music technology, and women with the music equipment itself, designed to accede to male musical desires.

4.6 Conclusion

A considerable degree of technical skill is an absolute requirement for sound engineering. However, technology and technical skill tend to be conceived in ways that foster continued male dominance of the vocation, especially in professional paid positions. Women are thought to be fearful and inept with technology, while men’s confidence and expertise are overemphasised. While some in the industry attribute this difference to biology and others to socialisation, it is clear that such discourses of sexual difference cannot encompass the range of experiences of sound engineers of either gender. A number of women have defied expectations by taking on sound technology confidently and effectively. Men who would ordinarily be thought to engineer sound with ease excel despite their lack of confidence. Insofar as technical skill is merely one requirement among three for successful sound engineering, it tends to be emphasised as the most important attribute of a sound engineer at the expense of interpersonal skills and creativity or musicianship. Ironically, sound engineers overwhelmingly understand technical expertise as a set of skills acquired through learning, especially practical experience. This gender-neutral discourse disrupts the equation of technical skill as inherently, naturally masculine, despite the existence of discourses of sexual difference that veer towards gender essentialism.
Thus far, not all feminist musicologists’ attempts to subvert gender essentialism in music technology discourses are successful. One strategy has been to reposition women within new discourses of sexual difference that overvalue women’s contribution to musico-technical creativity. However, such endeavours can only mitigate the effects of women’s marginalisation within the music industry. Ultimately, any discourse of sexual difference will reinscribe gender in ways that may be mobilised against certain women. Similarly, musicologists have adopted the cyborg metaphor, some arguing that it is a fruitful reimagining of women as technically savvy, but the cyborg image can be and is easily utilised to reflect and construct masculinist and anti-feminist discourses of sexual difference. The best possible solution is to reject discourses of sexual difference and to find gender-neutral discourses that welcome all users of technology to sound engineering.
5 ‘No, I’m Not Minding the Desk For My Boyfriend!’: Sound Engineering and Sexual Segregation

5.1 Introduction

It has been established that women in the music industry are greatly outnumbered by men. Key positions in the industry tend to be held by men, such as CEOs of record companies, A&R personnel, producers, recording studio management and personnel, sound company management and personnel, promoters, venue managers, radio programme directors and music journalists, positions associated with gatekeeping. In contrast, where women work in the music industry, they are restricted to a handful of roles, as secretaries and publicists, that are low in status and influence and at the same time support the discourses of sexual difference that assume women are nurturing and supportive. The purpose of this chapter is to demonstrate the extent to which sound engineering is structured by gender segregation. To this end, I evaluate existing literature concerned with the gendering of music vocations. Feminist analyses of gender segregation in the workforce will form the theoretical background to the argument. Second, I show that sound engineering is exemplary of sexual segregation in music vocations. Discourses of sexual difference in sound engineering work to sustain this otherwise arbitrary differentiating of women’s from men’s work in the industry. Finally, in section 5.8, I investigate sound engineers’ perceptions of academic training courses in sound engineering, in order to establish whether or not gender segregation is functioning at the level of tertiary education, discouraging women from pursuing the occupation in a professional capacity. Is audio engineering training one of the first ‘filters’ that women encounter on their way to sound engineering work? Despite efforts from training courses to
attract female students, questions arise concerning their efficacy as an introduction to professional sound engineering work for male and female students alike.

5.2 The Gendering of Music Vocations

Over the last three decades, feminist music historians and sociomusicologists have paid a considerable amount of attention to the concentration of women and men in particular music activities. Early research on the gendering of music vocations has tended to bring sex stereotyping of musical performance into the foreground. Joanna Harper (1986) focused on women’s exclusion from key institutions in the Western Art Music tradition, such as symphony orchestras. She provides examples of the denigration and disregard of women’s contributions to these traditions as vocalists, instrumentalists, composers and conductors (Harper 1986, pp.68-74; see also Bowers and Tick 1986, pp.4-7). This unbalanced history leaves its legacy today where particular music activities are stereotyped according to gender, for example singing and playing the flute are often thought of as most appropriate for girls whereas brass instruments are considered more appropriate for boys to play. Citing music education research, Harper argued that schools perpetuate gender specific socialisation, encouraging boys and girls to conform to ‘masculine’ and ‘feminine’ gender roles respectively, roles that proscribe and restrict the kinds of musical activities considered acceptable for each gender (Harper 1986, pp.74-84).

Continuing the focus on Western Art Music traditions, Carol Neuls-Bates has also described the restrictions placed upon female instrumentalists through the sexual stereotyping of musical instruments. From the Renaissance until the early twentieth century, women were permitted to play only those
instruments that did not distort their faces or their ‘physical demeanor’ (Neuls-Bates 1982, p.xiii). Judith Tick (1986) emphasised that the sexual stereotyping of musical activities is by no means resistant to change: ‘From a sociological viewpoint, instrumental performance and composition can be seen as occupations whose sexual definitions were [by the twentieth century] in transition as well: they were no longer exclusively sex-typed as male. The concept of occupational sex-typing, therefore, includes cultural values and beliefs that justify sexual distribution on normative grounds. Rationalisations of the division of labour within music that had previously excluded women from professional musicianship were also affected by changes in the definition of women’s work’ (Tick 1986, p.326). Although opportunities for public performance were expanding for women at this time, debates continued regarding the instruments most acceptable for women to play. Wind and brass were considered by some musicians to be too heavy for women, and could ‘contort’ their faces in ways that fell short of the social conventions of female attractiveness (Tick 1986, pp.332-333).

Women’s participation in conducting has also been considered by some to be contentious. There is evidence that, despite the construction of conducting as a masculine vocation, women have worked as conductors (Lawson 1991, p.197). Lawson lends further weight to research showing that restrictions on women’s musical activities began to loosen in the twentieth century. Barriers to women such as their exclusion from higher education and from Musicians’ Unions lifted during this time (Lawson 1991, p.208). However, difficulties for women remain in that they often lack support and awareness of role models (Lawson 1991, p.199). According to Lawson, feminine socialisation to be nurturing and supportive is incompatible with the requirement for conductors to be authoritative, and must be overcome (1991, pp.204-205).
According to Hannah Bosma (2003) and Andra McCartney (1994),
electroacoustic composition is a locus of the gendered division of labour.
Hannah Bosma clearly situates this as a product of patriarchal dualisms:

The prevalence of male composers of electroacoustic music combined with singing
female vocalists is a manifestation of a hierarchical dualism: masculinity is connected
to composing, the work of the mind, authority, language, reason and innovation, and
opposed to femininity, performing, the body, non-verbal vocal sound, emotion and
tradition (Bosma 2003, p.16).

The dualistic image of the masculinised electroacoustic composer actively
manipulating the passive feminised machine is a concern for Andra
McCartney, who recognises its discursive role in constructing a gendered
division of labour within electroacoustic music institutions such as university
composition courses, concert halls, conferences and professional organisations
(McCartney 1994, p.80).

Feminist economic theory (Cameron 2003) has also contributed to debates
about of the position of women within the music industry, and highlights the
discrimination they face. However, it has tended to take a broad overview,
losing sight of the nuances within sub-genres. In addition, Cameron’s article
focuses on gender disparity among musicians and fails to address the
gendered structures of the music industry as a whole, instead, contributing to
the silence surrounding the gendered division of labour within music
industry roles.

Discourse within popular music studies has contributed to the understanding
of musical vocations as gendered. One of the first articles to allude to this was
‘Rock and Sexuality’ by Simon Frith and Angela McRobbie, originally
published in 1978. While the authors are more concerned with the gendered
construction of sexuality in rock music performance, they make a vital link
between the position of women in the music business and feminist work on the sexual division of labour:

The subordination of women in rock is little different from their subordination in other occupations; as unskilled rock workers women are a source of cheap labour, a pool of talent from which the successes are drawn more for their appropriate appearance than for their musical talents (Frith and McRobbie 1990, pp.377-378).

The position of women in the music industry is more worthy of close feminist analysis than this statement suggests. While the similarity with other male-dominated industries is apparent, the music industry’s particular manifestation of this problem can be examined in order to evaluate the wider applicability of contemporary feminist research into sexual segregation in the workforce. Gender structures the music industry, so a detailed examination of these structures makes an important contribution to our understanding of its operations.

Steward and Garratt (1984) explain the roles women usually occupy in the popular music industry and draw attention to their rarity in higher-level industry positions. Largely, the authors do not offer any explanations for this unevenness, except when discussing women in production and recording engineering. They attribute women’s putative technophobia to socialisation, which they see as a contributing factor in their low representation in studio roles (Stewart and Garratt 1984, p.75).

Musicians’ magazines are yet another area of the music industry that exemplify the gendered division of labour. ‘The vast majority of the senior editors and the regular contributors are male, with women most often occupying positions as editorial assistants, designers on the production staff, or as marketing and sales reps’ (Theberge 1991, p.286). The editorial and advertising content consequently reflect this gendered division of labour.
Interestingly, Theberge notes that although the home studio has gained ascendancy, musicians’ magazines have neglected to represent women in home audio production, despite women’s traditional alignment with the domestic sphere (Theberge 1991, p.287, 1997). Unfortunately, the predominance of male-oriented content in musician magazines serves to reinforce and recirculate the discursive production of sexual difference in music fan communities.

Mavis Bayton’s ongoing research (1989, 1990, 1997, 1998) on women rock musicians in the UK focuses on two principal questions: why are women under-represented as rock musicians, and what is significant about the women who do pursue rock music careers. Using an ethnographic method, she touches on structural sex segregation in the music industry, providing thorough details of the constraints and opportunities for women rock musicians. With regard to one bastion of rock masculinity, the electric guitar, Bayton provides comprehensive detail of the barriers and discouragement women must overcome if they are to successfully perform on the instrument (1997).

However, the majority of research into gender in the music industry has tended not to concern itself with sex segregation’s fundamental relationship with the industry’s formation. Where scholars have suggested problems of sex stereotyping of musical activities, they have tended to describe its manifestation and attribute gender discrepancies to socialisation. This is also true of the scant analysis of the gendering of sound engineering as a musical vocation (Bayton 1989, 1998; Brown 1995; Diamond 2005), although Sandstrom’s (2000) research on gender and sound engineering show how discrimination and technology have contributed to its gendering. But she does not link these factors to the gendered division of labour. Socialisation
theory has limitations for explaining the gendered division of labour. It tends to ascribe overwhelming powers of compulsion to social institutions (such as the family, education, the media etc) at the expense of an individual’s agency. How do we account for our capacity to resist social norms on an individual level if they are so powerful? Typically, scholars who employ socialisation theory will acknowledge that women (and men) can and do resist socialisation and as a consequence they exhibit behaviours inconsistent with traditional gender norms. This approach to analysis is evident in the work of Mavis Bayton (1989, 1998), among others. But it is not enough to acknowledge the individual’s capacity to resist socialisation: it must be theorised so that the relationship between constraining social structures and personal agency is properly illuminated. I argued in section 3.3. in favour of a combination of a Foucauldian disciplinary power framework, coupled with Butler’s provocative insights into gender performativity and the citation of gender norms; and one of its advantages is that it effectively overcomes the agency flaw of socialisation theory. A poststructuralist feminist approach may seem at odds with the more structuralist account of gender segregation at work expounded later in section 5.4. However, as I proposed in section 2.3.2., the two complement each other and curtail each other’s inadequacies.

While socialisation theory is prevalent in feminist musicology, exceptions exist too. Marion Leonard’s (2007) study Gender in the Music Industry is concerned first and foremost with how women musicians negotiate a music industry discursively constructed as masculine. She takes account of other professionals in the music industry only insofar as they are related to women musician’s experiences. There are useful insights into the impact of the masculine gendering of the recording studio on women indie rock musicians, as well as the sexist hostility sometimes directed towards women sound engineers and women musicians on tour (Leonard 2007, pp.51-60). But, by
and large, musicology has not engaged with the insights of feminist labour studies. As Clawson has suggested (1999a), fuller attention to the structural elements of sex segregation are vital for a deep understanding of gender in the music industry. Drawing on the wealth of literature from feminist labour studies, I provide a more comprehensive examination of gender segregation as it structures sound engineering and the music industry more broadly.

It may be suggested that to draw insights from feminist labour studies in order to conceptualise the production of music is theoretically unsound, because the production of art is intrinsically a different kind of work than other forms of material production. For example, a distinction may be made between making music, said to be creative, and making a chair, which is not. I dispute this, for reasons eloquently set forward by Janet Wolff:

> art is always ‘manufacture’. The mystification involved in setting artistic work apart as something different from, and usually superior to, all other forms of work can be combated by showing that all forms of work are (potentially) creative in the same way, and that artistic work, like other work, loses its quality as ‘free, creative activity’ under capitalism (1993, p.13).

In other words all work has the capacity to be creative, and the myth of artistic labour as ‘free’ is tainted by the arts’ unavoidable embroilment with commercial structures. Another argument that distinguishes artistic labour from other forms of labour is that the arts as material products have no obvious use value. A response to this might be that while non-artistic products have more functional, physical use value, the use-value of artistic products is conceptual and metaphysical, but a use-value nonetheless. In any case, labour is labour, whether artistic or not. While there are many instances in which it is important to consider the production of art as distinct from other forms of production for the sake of rigour, there remain similarities to
be investigated. If a particular gender theory of labour applies to more than one male-dominated profession, then to ignore this would be foolhardy.

Ethnographic studies of women musicians risk reproducing discourses of gender segregation. By studying ‘women in music’ (as noteworthy and crucial as this task is) female musicians continue to be defined first and foremost by their gender whereas ‘musicians’ as a broad category, though implicitly male, continue to be unmarked by gender and unremarked upon as a gendered group. Extending the argument of Clawson, my study of sound engineers incorporates a roughly even number of men and women, and puts both masculinity and femininity under the spotlight of analysis, because both contribute to the gendered structure of sound engineering whereby men are normative and women are marginalised. In addition, discourses of sexual difference – of maleness as well as femaleness – help to segregate men and women in the music industry into different, separate occupations, which is evident in sound engineering. In eschewing a ‘womanist’ frame for a ‘genderist’ approach, I align myself with the general movement in feminist studies since the 1980s from theories of women toward theories of gender.

A handful of researchers have presented analyses of the gendered structures of social life that contribute to the gendering of musical vocations. For example, Jennifer Post (1994) describes and challenges a dichotomous public/private sphere distinction in music literature that aligns men’s musical activities purely with the public sphere of work and social life and women’s musical activities strictly with the domestic or private sphere of the home. Post critiques this characterisation on the grounds that it is too restrictive to accurately document women’s and men’s differing musical activities.
Adhering too stringently to the public/private distinction allows one to overlook women’s contributions to music in the public sphere. Women have engaged - and continue to engage - in public musical performance, if in ways that tend to ‘manifest women’s social restrictions. Women … remain restricted in performance context and repertoire and are placed in subordinate positions in relation to men’ (Post 1994, p.44). I concur with Post’s findings here. While the public/private distinction is salient, as it underpins the gender division of labour in music, it is not as useful for conceptualising women’s involvement in public sphere musical activities, such as in sound engineering. As will be demonstrated, terms such as horizontal and vertical gender segregation have much greater explanatory power in accounting for women’s and men’s different music-making activities in the public sphere.

More recently, scholars have sought to closely analyse and challenge the concentration of women and men into separate and differently valued musical activities. In *Music, Gender, Education*, Green (1997) draws on the feminist philosophical theory of patriarchy as a framework for understanding men’s systematic domination of Western music. In feminist theory, patriarchy is understood to rely on opposing abstract concepts onto which gendered assumptions are overlaid. One such division is that of the aforementioned public and private spheres of work, which functions in Green’s argument as the fundamental dualism from which all other gendered dualisms derive (Green 1997, pp.13-14). Other gendered dualisms include active/passive, productive/reproductive, mind/body, reason/emotion, culture/nature, a point noted often by various feminist theorists.\(^{28}\) The former term in each pair is attributed masculine status and the latter is aligned with femininity and denigrated. Just as the public/private opposition genders the spheres of work,\(^\text{28}\)

\(^{28}\) For an example, see Jaggar 1989, p.145.
‘musical patriarchy’ divides musical activities into those associated with the public sphere (men), and those associated with the private sphere (women). Green does not conceptualise any of the binary terms as fixed or unambiguous, but instead positions them as discursive, in other words knowledges that circulate, and influence individuals’ and social groups’ understandings of ‘truth’ (Green 1997, pp.4-5). In this way, discourse is implicated in the machinations of power, it is subject to negotiation and revision as readily as it constitutes ‘truth’ and thus it is unstable, and in flux. In this way, musical patriarchy itself is the site of ongoing contestation and alteration.

Discourse and ‘musical patriarchy’ are valuable tools for theorising sex segregation in musical vocations. I suggest in contrast to Green that there is no elemental binary opposition from which all others derive, but instead that all exist concurrently and are connected by the ‘net’ of power29 that produce them and are also produced by them as mutually reinforcing discourses. Sex/gender-nexus binary oppositions are, rather than being biological facts, additional discourses connected in the net. While Green relies on the contentious assumption that ‘sex’ refers to the biological characteristics that indicate humans as either male or female (Green 1997, p.12), I understand sex as produced by gender (the social overlay of characteristics onto so-called ‘sexed bodies’). I align myself here with the work of Judith Butler (1990, 1991) on the performativity of gender, where gender is argued to be ‘an identity tenuously constituted in time, instituted in an exterior space through a stylised repetition of acts’ (Butler 1990, p.179). In other words, gender is a social performance that produces the very identity, that is, sex, of which it is thought to be a manifestation. According to this view, sex is an effect of

29 Refer to the discussion of Foucault and power in section 3.3.1. for an elaboration of the ‘net’ metaphor for power.
gender. It is a set of qualities believed merely to describe a supposedly pre-discursive body. But the body is never pre-discursive, it is always configured through, and constituted by, discourses of gender.\(^{30}\) The notion that social norms are always already embedded in bodies, however, is too ‘radical’ for Green to give anything more than cursory treatment (Green 1997, p.12).

Green suggests that musical vocations are thoroughly imbued with musical patriarchy. The notion of display is central to her argument: ‘The most common institutionalised type of display and the most normal deployment of gender-roles within the relationship of display in the West involve an explicitly or implicitly sexual display in which the displayer is coded as “feminine” and the spectator as “masculine”’(Green 1997, p.25). In other words, though men and women both engage in display and spectator roles throughout social life, their relationship to display is fundamentally unequal.

To briefly summarise, Green argues that women’s musical performances can either affirm, interrupt or threaten patriarchal constructions of femininity, depending on the conventions of display inherent to the performance. Overwhelmingly, since the Middle Ages, women’s musical performance has tended to affirm femininity. When women play musical instruments, this interrupts the patriarchal discourses of feminine display, because to perform on an instrument women are necessarily engaging with a technological artefact and they are afforded a position of control, both of which detract from the bodily display of the performer (Green 1997, pp.53-54). However, she also suggests that women have been less prominent and even excluded from

\(^{30}\) In this statement, I do not mean to suggest that the physical world of bodies – and sounds – is merely an interpretation, or a text, or a discourse. The point is that as humans we understand the physical world, including our own embodiment, only through our interpretations of it. This is not to deny the concrete existence of a physical world or to deny human embodiment. To claim an essence of sex located in the body, or to claim music has an inherent meaning, implicates Green in an essentialist discursive production that she is unwilling to recognise and reflect on.
performing on instruments that interrupt feminine display the most. Not coincidentally, these instruments tend to be ‘the biggest, loudest and most technologically advanced’ (Green 1997, p.56). According to Green, when women compose music they are a challenge to patriarchal discourses of feminine display, and this is because compositional display is perceived as a display of the mind rather than the body, and is therefore strongly aligned with masculinity. It also involves technical know-how, which is seen as anathema to femininity. Regardless of the epistemological difficulty in differentiating ‘inherent’ and ‘delineated’ musical meanings, Green’s explanation of the discursive construction of singing, instrument playing, composing and improvisation as gendered is a noteworthy contribution to understanding the music industry as structurally gendered. I consider it useful to view women sound engineers as ‘interrupting’ discourses of acceptable femininity, because of their deployment of highly technical and therefore masculinised sound equipment in their work. Certainly, given the male-dominated culture of sound engineering, simply seeing a woman performing these tasks is a challenge to the status quo, although not a complete dismantling of it.

Avoiding a discursive approach but mobilising feminist theorising of patriarchy, Mary Ann Clawson analysed gender roles within rock bands (1993, 1999a, 1999b). Her work foregrounds sociomusicological research on the formation of rock bands, as well as feminist sociological accounts of the gendered division of labour, making her argument robust. Rock music is structured with the group as the unit of creativity, and by the male camaraderie of its members. Instrument playing in the rock band is strongly linked to creativity (Clawson 1999a, p.101). Women’s access to rock band participation, not only as singers but also as instrumentalists, is seriously curtailed by adolescent gender separation. Bands are inevitably borne out of
friendship networks and are a principal arena in which young musicians acquire instrumental skills. Adolescent male musicians consolidate their masculine embodiment through the domination of physical and aural space, as well as the opportunities for male-bonding which rock bands afford them. Rock bands are often structured around the absence of women. The adolescent friendship networks that facilitate men’s participation in rock music seldom provide opportunities for women’s involvement.

If boys’ peer groups are the principal locus of band formation, then girls have two options: to start their own bands, drawing on their own female friendship networks, or to cross the border and gain access, as individuals, to male social networks which are the principal sites of skill acquisition (Clawson 1999a, p.107).

Women’s circumscribed access to networks of band formation and therefore skill acquisition are due to the gender segregation of adolescence. When women do become rock instrumentalists and join bands, it is usually not until their early adulthood, when women’s and men’s social lives are once again integrated (Clawson 1999a, pp.105-107).

The division of labour in music rests on the assumption that singing is a ‘natural’, unmediated activity which anyone can perform. The foundation of rock doubly marginalises women singers not only because the rock band is figured as an exclusively masculine space, but also because vocal skills are not valued as genuinely creative (Clawson 1993, p.239). As we have already seen in Green’s work (1997), singing’s origination in the body situates it clearly within post-Enlightenment Western ideologies whereby dualistic concepts are used to conceptualise and categorise social life. The dualisms are gendered, and purported to be mutually exclusive, and, in this case, singing invokes the ‘body’ category of a mind/body dichotomy, and is associated with physicality, emotion, nature and women. Singing is devalued as easy, natural, and unskilled. In contrast, instrument playing is valued within rock as demanding
a high level of acquired skill. When contrasted with singing, in dichotomous reasoning instrument playing is seen as an exercise of the mind, of culture, of technology and of men (Clawson 1993, p.237). Unsurprisingly, women’s participation in rock bands tends to be as vocalists, where they pose the least threat to the patriarchal structure of rock and the gendered division of labour more broadly. This is also true of dance music, as Bradby argues:

...overall in dance music this gendering of voices appears as a powerful restatement of traditional gender divisions – the association of men with culture, language and technology, and of women with emotion, the body, sexuality… (Bradby 1993, p.168).

The traditional gendered division of labour of rock bands has been recreated in the more recent genre of techno dance music.

Interestingly, alternative rock has been one site where gender roles in music are being noticeably renegotiated, as women gain prominence as bass players. Clawson warns that we should not view this as the overturning of the rock patriarchy, but instead we are prompted to consider why women are ‘disproportionate[ly] concentrate[ed] in a particular musical specialty’ (Clawson 1999b, p.193), a concentration that suggests a continuation of the gendered division of labour in music. Following Reskin’s and Roos’ (1990) theory of ‘job queuing’, it is suggested that women’s concentration as bass players is the result of its depreciation in prestige for men and its newfound accessibility and therefore attractiveness to women (Clawson 1999b, p.194).

Guitar is the most prestigious instrument in the rock band to play: it takes centre stage in the rock band and is believed to demand a high degree of skill. Drums occupy physical and aural space in ways that are coded masculine. The bass, on the other hand, is arguably the easiest instrument to play, and affords less prestige. Perhaps because of this hierarchy of rock instruments, men are more enticed to play guitar than bass. As a result, bass players are in high demand. Bass playing’s low prestige and high demand have meant new
opportunities for women in alternative rock bands (Clawson 1999b, pp.200-201). In addition to the concept of ‘job queuing’, Clawson notes that ‘a change in social and cultural expectations … may have sparked and altered women’s aspirations while creating a specific audience demand for women musicians’ (Clawson 1999b, p.201). Soon after the 1970s feminist challenges to women’s subordination and feminine gender roles was alternative rock’s inception via punk. Alternative rock prides itself on being unconventional, liberal and oppositional. What better way to create a visual sign of open-mindedness than women’s participation in alternative rock bands?

Women bass players in alternative rock bands often attempt to naturalise their participation in the male-domain of the rock band by appealing to essentialist narratives of gender. For example, they may describe their affinity for bass as being due to its ‘supportive’ function within the rock band. Women, they suggest, are naturally supportive. They may alternately appeal to narratives which align women with the body and therefore rhythm, and use this explanation to naturalise women’s performance of bass as one half of the rhythm section of the rock band (Clawson 1999b, pp.204-206). Such essentialist explanations reproduce discourses of sexual difference, however, the symbolic importance of women’s newfound opportunities for instrumental performance within the alternative rock band cannot be overlooked. Even if ghettoised in a musical role of relatively low prestige, women’s bass-playing is a very visible challenge to the ubiquity of the all-male rock band. Gay (1998, pp.87-91) also recognises this challenge, although he tends to overstate its significance when he celebrates women bass players as ‘musical cyborgs’, an image I critiqued in section 4.3.6.

In *Girl Groups, Girl Culture: Popular Music and Identity in the 1960s*, Jacqueline Warwick mobilises feminist standpoint theory to re-evaluate the role of the
female singer in popular music production, an explicit nod to feminist labour theory. She turns the traditional view of the record producer on its head: rather than being a producer in a traditional sense, the record producer, and the recording engineers, merely supervise the labour process. It is the musicians themselves who are labouring to produce the music. But women’s vocalising is thought to be a natural product of their bodies and thus not to involve labour at all: on the contrary, singing is work, it is a craft that vocalists are constantly in the process of improving, as opposed to something emitted from the body unmediated. When the intrinsic skill of singing is acknowledged, for women as well as for men, then women vocalists can also be recognised for what they are: labourers, music producers, alongside their instrumentalist counterparts in popular music production (Warwick 2007, pp.94-95).

Andolsun (2004) studied the intersection between female labour trends and popular music production. Her thesis reveals that tokenism theory, in the past usefully applied to formal employment organisations, applies equally to musical performance work and rock bands. Women in local-level rock bands experienced many of the indicators of being tokenised: visibility, contrast, and assimilation (Andolsun 2004, pp.vi-vii). In other words, because they were in the minority in bands, women were highly visible, stereotyped, and their differences from men exaggerated in ways that were gender-discriminatory. Andolsun’s findings resonate with my own findings about women in the male-dominated occupation of sound engineering. However, I have steered clear of ‘tokenism’ terminology, because it connotes a situation where women are ‘allowed’ into institutions where men predominate, thereby de-emphasising women’s agency and discursively constructing men’s ownership of the work. Women who work in non-traditional occupations have deliberately entered such jobs in the face of men’s resistance, and have
achieved within them on the basis of their skills and the merit of the work they do. They are not passively ‘let in’ by men.

As I argued in section 2.4., much ethnographic research on the production of popular music has privileged musicians by foregrounding their experiences (Stith-Bennett, Cohen, Finnegan, Bayton, Leonard). There is a paucity of ethnographic studies of non-performers involved in the production of popular music, such as producers, live sound engineers and recording engineers (exceptions include Kealy 1974, 1990; Porcello 1996, 2003, 2004, 2005; Sandstrom 2000; and Zak 2001). I contribute a comprehensive analysis of the gendered division of labour as it applies to the wider music industry and sound engineering specifically, both in the live arena of musical performance and in the professional recording studio as well as the home recording studio. I show how sound engineering is systematised by the segregation of men and women into different roles and spheres. Gender segregation takes on the appearance of naturalness and is understood as self-evident because of the discourses of sexual difference that underpin it. These discourses are pervasive in sound engineering and they construct and maintain it as a male-dominated occupation.

5.3 Feminism and Occupational Gender Segregation

Feminist studies of occupational gender segregation differentiate between two types of gender segregation. Horizontal gender segregation (HGS) refers to the phenomenon whereby women and men are concentrated in different occupations. Vertical gender segregation (VGS) occurs when women and men work in the same occupation but women are typically employed in lower grades (Hakim 1979 cited in Bagilhole 2002, p.12). Much of women’s work in the music industry can be adequately accounted for by the concept of HGS,
for example, their prevalence as publicists and as receptionists. This is consistent with a number of feminist studies of horizontal gender segregation, which show women’s over-representation in lower-paid, lower-status clerical, administrative and service occupations (Glover and Kirton 2006, p.29). Glover and Kirton note that ‘clear patterns across industrialised countries indicate that men are over-represented in managerial and craft occupations; these are traditionally the best paid of the white-collar and blue-collar workforces’ (Reskin and Roos 1990 in Glover and Kirton 2006, p.31). Interestingly, men are predominant in managerial, technical and production work in the music industry. This raises serious questions about gender discrepancies in access to the means of musical production, which will be addressed later in this section. However, it is important to note that cross-cultural research has revealed the contingency of the gender-typing of jobs: ‘Occupational segregation by gender is produced and sustained by historical, social, cultural and economic processes that are specific to national contexts’ (Glover and Kurton 2006, p.29). Evidence presented earlier in section 5.2. regarding women’s changing roles in Western Art music and Western popular music reiterate this point.

Women are disadvantaged by VGS in work: this is considered a truism in feminist sociology. However, there is disagreement over the degree of concern warranted by HGS. Does HGS disadvantage women in paid employment? For example, Reskin and Roos (1990) argue there is a link between HGS and the gender pay gap (cited in Glover and Kirton 2006). However, Crompton questions this link on the grounds that Scandinavian countries display a high degree of HGS but their gender pay gaps are among the lowest in OECD countries (1999, cited in Glover and Kirton 2006, pp.32-33). This would appear to dispel the argument that the more men and women are segregated by gender in their paid employment, the greater their gender pay gap will be. However, evidence continues to suggest a link between HGS
and women’s disadvantage in the workforce. In any case, even in the most socially democratic countries, the gender pay gap still exists. HGS is very likely to be one of a number of contributing factors to its continuance. In addition, HGS disadvantages women workers relative to men in a number of other ways, for example the jobs in which they typically work provide them few opportunities to exercise authority and usually garner less prestige and sometimes less pay. This is especially true of the music industry, where women seldom have authority over musical production.

Since the 1970s, New Zealand women have made important legislative advances that have broadened their options for work in the public sphere considerably. In 1977, the Human Rights Commission Act legislated for women’s right of entry into all jobs and professions, rights further entrenched by the 1988 State Sector Act which, in theory at least, made equal employment opportunities mandatory. As of December 2007, 61.9 percent of women were in the labour force, as opposed to 39 percent in 1971, before the legislative changes. Women made up approximately 46% of all workers (Department of Labour 2008a). Women workers are a financial necessity, as, within the context of a nuclear family structure, it becomes more and more difficult for the family’s needs to be met on one wage. Feminists continue to argue that as workers, women are disadvantaged by gender structures. Despite women’s increased participation in the workforce, problems of inequality persist, such as occupational gender segregation, the gender pay gap, and women’s concentration in part-time work (Glover and Kirton 2006, p.2). This continues to be true in New Zealand, for example in June 2007 women’s average hourly wages were around 84% of men’s wages. Women are more heavily concentrated in part-time work: 35.3% of employed women work part-time, compared with only 11.6% of employed men. Horizontal and vertical occupational segregation continue to structure men’s and women’s labour
force participation. Department of Labour figures from 2007 show that most New Zealand women are employed as clerks (20.5%), service and sales workers (21.6%), professionals (19.3%), technicians and associate professionals (14.2%) and legislators, administrators and managers (11.3%). In contrast, the top five male occupations over the same period were trade workers (18.3%), legislators, administrators and managers (14.8%), professionals (14.3%), plant and machine operators (12.5%) and technicians and associate professionals (9.9%). This is evidence of horizontal gender segregation. Evidence of vertical gender segregation in New Zealand has been consistent over the last 20 years: While 87.2% of females were employees, only 8.0% of women are self-employed, and 3.2% of women are employers. In comparison, 78.7% of men are employees, 13.3% are self-employed, and 7.2% are employers (Department of Labour 2008a). Unfortunately, the National Government’s recent decision to abolish the Department of Labour’s Pay and Employment Equity Unit is unlikely to rectify these gender imbalances, but will lead to a reduction in government research in this area (New Zealand Council of Trade Unions, 2009).

Occupational gender segregation is of particular note in this study because men in the music industry typically occupy key jobs, such as managerial and executive positions; gatekeeping roles such as A&R, radio DJs, promoters, venue managers; and jobs in the production of music such as producers, musicians, recording engineers and live sound engineers. Women in the music industry are more likely to occupy a narrow range of jobs with less influence, pay, prestige and opportunity for advancement, such as administration, reception work and public relations. Where women enter male-dominated music occupations, they are not evenly distributed throughout the occupation. They are usually in the minority, or are marginalised into forms of work constructed as acceptably feminine and
accorded less value. As demonstrated above, women vocalists are an example of this. Women vocalists break through the tradition of exclusive male musicianship, but their presence is rationalised through appeals to female biology. Singing is accorded less value than other musical performance activities and it is viewed as natural and unskilled. Thus women’s preponderance in this undervalued activity does not threaten to overturn the gender structure of the music industry.

There is some confusion when applying to HGS and VGS to musicians’ work. In indie rock music, how does one explain the integration of women as bass-players? HGS is inadequate to account for this. Women bass-players are in an occupation (instrumentalist) that is pervasively male. VGS accounts for gendered jobs within the same occupation, but in the case of women bass-players compared with male electric guitarists, despite bass playing’s perception as less skilled work than electric guitar playing, women instrumentalists are not necessarily less well remunerated, thus not intrinsically at a financial disadvantage. In order to account for this, it is not enough simply to examine the music industry in terms of HGS or VGS. Each occupation must be broken down further into specific jobs so that gendered divisions of labour between jobs are illuminated.

5.4 Gender Segregation in Sound Engineering

Sound engineering for popular music is horizontally segregated by gender. Women make up a minority of all employed sound engineers across all industries. New Zealand Census data from 2006 provides the most accurate figures of men’s and women’s respective employment in the occupation and
other music occupations in the entertainment and creative arts industries\textsuperscript{31}. I also collected a sample from New Zealand Musician (NZM) magazine that illustrates the proportional gender difference in audio engineering teaching. Both the Census data and the Music Educational Directory from NZM indicate that sound engineering – and instruction in it – are horizontally segregated by gender, and women make up a tiny minority within these occupations.

Statistics New Zealand data derived from the 2006 Census of Population and Dwellings (Cammell 2008) demonstrates the stark horizontal gender segregation in music-related industries, and in other entertainment and creative arts industries in which musicians and sound technicians are employed. In the Census, ‘employed’ refers to persons in full-time and part-time employment, in other words, persons working at least one hour per week for remuneration\textsuperscript{32}. Unfortunately, this excludes musicians and sound technicians who are not in formal paid employment. Thus the Census data does not encompass all musicians and sound technicians, such as those for whom such work comes with no remuneration, those who work in a volunteer capacity, who enjoy it as a hobby, or who evade conventional employment structures and receive remuneration in an informal ‘under the table’ economy\textsuperscript{33}. Nonetheless, Census data illustrates the gender dynamics of formal employment in musician and sound engineering occupations.

\textsuperscript{31} See Appendix 2 for the data in table-form, and for important technical notes regarding random rounding and confidentiality.
\textsuperscript{32} The footnotes in Appendix 2 give detail of the sample. The fact that the Census collects data on formal paid employment rather than informal, unpaid work reiterates Marilyn Waring’s view that in national accounting systems, unpaid domestic work – work performed disproportionately by women – is not valued by society and is often thought not to be work at all (Waring 1988, p.13).
\textsuperscript{33} Sound engineering work for popular music in New Zealand is pervasively ‘non-standard’. Paul Spoonley has noted that as a result of the labour market transitions of the 1980s and 1990s brought about by neo-liberalist government policies, non-standard work has grown in New Zealand to the extent that it is as standard as so-called ‘standard work’. ‘Standard’ work is permanent, full-time employment, whereas ‘non-standard work’ is that which falls outside of this parameter: casual; temporary; part-time; voluntary; informal; seasonal (Spoonley 2004, p.4). Short-term contracted project work is common, both in recording and live sound engineering, and non-contractual informal
According to the findings of Statistics New Zealand (Cammell 2008), which are represented in graph form in Figure 2, approximately 408 New Zealanders were employed as sound technicians. Of these 408, around 42 were women. In other words, women make up roughly 10 percent of all persons employed as sound technicians in New Zealand, and undoubtedly men are prevalent. This trend is even more pronounced in music-related industries. For the following five industries: Music and Other Sound Recording Activities; Performing Arts Operation; Creative Artists, Musicians, Writers and Performers; Performing Arts Venue Operation; and Radio Broadcasting, approximately 147 persons are employed, of which around 135 are men, that is, 92 percent. The occupation of sound technician is horizontally segregated by gender, especially in the music industry.

If we compare this with the employment of singers in New Zealand, the contrast in occupations is evident. Of approximately 144 New Zealanders employed as singers, 87 are women and 57 are men. The 60:40 ratio favours women and indicates to us the poignancy of debates regarding women vocalists outlined above in section 5.2. On the basis of these figures I suggest that in New Zealand, singing is a gender-integrated occupation. However, it is interesting to consider what this ratio might look like if the figures were broken down by genre. Are women more likely to be employed as singers in WAM, rock, pop, rap etc? The data do not reveal this.

arrangements abound too. In this respect it is not altogether dissimilar from the flexible work that characterises the New Zealand screen production industry as described by De Bruin and Dupuis (2004) – and notably, a number of my respondents were employed as sound engineers in the screen production industry alongside their popular music production work. It is worth mentioning here that the informal work of sound engineering conforms to the gendered relations of informal work more broadly: market-oriented, technical forms of informal work tend to be overwhelmingly performed by men, whereas women in informal economies are highly concentrated in care and domestic work (Windebank and Williams 2009).
Three other music occupations suggest the extent of horizontal gender segregation in the entertainment and creative arts industries in New Zealand. Roughly 1080 New Zealanders are employed as instrumental musicians, and only around 279 of them are women, represented as 26 percent. Similarly, women are around twenty five percent of approximately 123 employed composers. Less than 10 percent of musical instrument makers and repairers are women. Like sound technician work, these occupations are all horizontally segregated by gender and peopled disproportionately with men. It is no wonder that the majority of women respondents in my qualitative study felt that gender is an issue in the music industry.

34 Again, it is interesting to ponder how these figures might be altered if they were categorised by instrument type and/or genre. One wonders how many men and women are employed as flautists, and how many as electric guitarists.
Figure 2 (Cammell 2008)

A Comparison of Numbers of Men and Women Formally Employed in Music-Related Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total Male</th>
<th>Total Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Technician</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Musical Instrument Maker or Repairer</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Performing Arts Technicians</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Media Producer (excluding Video)</td>
<td>400</td>
<td>200</td>
</tr>
<tr>
<td>Composer</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>Music Director</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Musician (Instrumental)</td>
<td>900</td>
<td>300</td>
</tr>
<tr>
<td>Singer</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>
NZM magazine includes an annual Directory of tertiary level Music Training Courses in New Zealand. It is far more comprehensive than the Studio Directory, listing all of the major Sound Engineering courses in New Zealand. As such, it provides up to date and accurate data showing how many women are employed as sound engineering instructors in this nation. Women comprise 9% of sound engineering instructors, as shown in Figure 3 below.

**Figure 3 (New Zealand Musician magazine, 2002 – 2008)**

Again, men are nine times more likely to teach sound engineering at a Music Technology institution in New Zealand. While Figure 2 shows that women have definitely made some inroads into sound engineering education since 2002, the decrease in numbers after the peak in 2005 may be cause for concern. Female role models and mentors have been identified as one method of encouraging women to enter male-dominated occupations (Bagilhole 2002, pp.41-43)\(^{35}\), and these findings indicate that women students of sound engineering are lacking female role models in their education.

The gender discrepancies in paid musician and sound technician work are not merely a facet of New Zealand’s unique music industry. Jennifer Brown, in

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\(^{35}\) For further explanation refer section 3.4.4.
her 1995 Masters thesis, provides similar statistics on the Australian music industry. She notes that in 1993 men were almost three times more likely to receive remuneration for musical activity than women. Australia’s 1991 Census data shows an almost even concentration of women and men in singing employment, but women make up a mere 22 percent, 20 percent and 12 percent of instrumentalists, composers, and sound technicians respectively (Brown 1995, pp.13-15). Fifteen years later and on the other side of the Tasman Sea, women fare only slightly better in composition and instrumentalist employment, but even worse in sound technician work.

Andrea Odintz profiles numerous women who have successfully negotiated the ‘internalised anxiety, sexism in the workplace, and a traditional lack of encouragement for women interested in acquiring expertise in math, science, and mechanics’ (1997, p.211) to become sound technicians and producers. She sensitively illuminates the sexism (from both women and men) and gender segregation that women technicians grapple with, but also their determination to excel in the artistic and technical jobs that they love. Early 1990s figures from an American music industry survey drew attention to women’s minority status in musico-technical jobs, and their near non-existence as ‘first’ or ‘lead’ technicians (Odintz 1997, p.217). The census figures from Statistics New Zealand show that in New Zealand at least, little has changed.

5.5 Maori and Sound Engineering

Because I concentrate on gender in sound engineering in New Zealand, I have not paid full attention to the interplay of ethnicity in sound engineering and the production of popular music production, and my research does not by any means contribute significantly to the process of redressing colonial
injustices perpetrated on Maori New Zealanders. However, this project would be incomplete if it did not take ethnicity into account. It is hard to ignore that, despite the current local popularity of musical styles performed predominantly by Maori and Pacific Islanders such as rap, reggae and dub, Maori (and Pacific Islanders) are conspicuously scarce in sound engineering and other key music industry roles in Aotearoa/New Zealand. Ethnically speaking, the typical New Zealand sound engineer is white and of European extraction. Given New Zealand’s colonial history\textsuperscript{36}, aspects of which continue on in New Zealand society today, it is perhaps unsurprising that Maori are marginal in the means of popular music production, for colonisation entailed the illegitimate seizure of sovereignty and authority from Maori by British colonisers, the result of which greatly constrained Maori self-determination. Access to the means of production is one way in which people can practice self-determination. This holds true for popular music production. Just as Maori have continuously and vigorously contested the processes and outcomes of colonisation, they negotiate the institutionalised racism that permeates the music industry, to engage in popular music production.

Discrepancies between Maori and non-Maori are evident in sound engineering work, where Pakeha predominate. The majority of my respondents were Pakeha, but a handful were Maori and they told me their experiences of being Maori in sound engineering. I have respected anonymity and have not listed the date of interview, because to link them to pseudonyms used in other sections of this dissertation may put them at risk of identification.

\textsuperscript{36} Sources detailing New Zealand’s colonial history and the impact of colonisation on Maori include King (2003), Walker (2004), Orange (1987) and Barrington (2008). The government also provides regular reports on the position of Maori within New Zealand society today, e.g. Maori Health (2009a, 2009b) and Deapartment of Labour (2009b).
Anonymous 1

I’ve always been a bit of a fan of hiphop though I’m starting to get a bit sick of it now, but I did my dissertation based around New Zealand hiphop, the origins of New Zealand hiphop and how Maori and Pacific Islanders in particular have appropriated the genre and taken it on to form their own kind of version of that music, genre. I looked at that, that was fun, that was really cool.

The first anonymous respondent noted that Maori and Pacific Islanders are sometimes underprivileged in comparison to their European New Zealander counterparts and that this was evident in sound engineering. She validated the link between racial inequality in sound engineering and racial inequality in wider New Zealand society. She also suggested that disadvantaged Maori need extra encouragement, implying that sound engineering is not a level playing field but that indigenous New Zealanders are often constrained by circumstances specific to their subjugation. She also alludes to the potential for empowerment that Maori and Pacific Island musicians can attain through their adaptation of hiphop. Her personal experience is that she is more likely to be singled out for being female than for being Maori. Another respondent agrees:

Anonymous 2

DS: Do you want to talk about being Maori and being a sound engineer, does that have any effect on your career?

Anonymous 2: It means I get asked to do more things from the family. No other than you have a big family, cos everyone’s your family, so you get asked to do more things, other than that, no. I think being a female is a bit more of a difference.

She suggests that she stands out more in sound engineering for being female than for being Maori. However, she also alludes to experiences unique to being a Maori sound engineer, such as being asked to work on projects with whanau (extended family). Another respondent, a student of audio engineering, answered my question in terms of discrimination, and he was adamant that there was no racial discrimination at the educational facility he studied at.
Anonymous 3
Anonymous 3: I’m half Maori.
DS: Has that affected your classroom experience at all?
Anonymous: Not at all. I mean there’s no difference or no-one notices any difference or anything in the class, we’re all the same. No-one makes any reference to it or anything like that. No-one notices anything like that, there’s no talk of it at all.

It would be difficult and ultimately misguided to draw conclusions about ethnicity in sound engineering from such a small sample. Nonetheless, it is fair to say that Maori are disadvantaged in the workforce due to the lasting effects of colonisation. Although it requires further investigation, Maori under-representation in sound engineering and popular music production suggests that they are disadvantaged and that institutionalised racism may well be a factor.

5.6 Gender Discrimination and Sexual Harassment

Sound engineering is maintained as a male-dominated, horizontally sex segregated occupation through formal structures and informal practices that favour men and disadvantage women. These structures and practices contribute to an environment which is unwelcoming and sometimes discouraging to women. Gender discrimination is sexist behaviour generated from beliefs stemming from gender prejudice. Sexual harassment has been proven as a form of gender discrimination and encompasses more than just unwanted sexual attention and sexual coercion, though such behaviour is undoubtedly unwelcome (MacKinnon 1979, pp.2-5, p.29). Sexual harassment also involves what Fitzgerald et al (2001, p.991) refer to as sexist comments and sexual hostility. Sexist hostility is the expression of sexist attitudes, whereas sexual hostility is ‘sexualised animosity, such as referring to women by degraded names for female body parts’ (Fitzgerald et al 2001, p.993).
Andolsun found that women rock musicians experienced come-ons, condescension and sexist jokes (2004, p.61).

Almost all of the women sound engineers I interviewed had experienced some form of gender discrimination in their work, either as students at sound engineering schools, as trainees in studios and sound companies, or in paid employment. Such discouragement varies widely in its manifestations from subtle, almost imperceptible practices where men are favoured and women are excluded (but lack concrete proof of their exclusion), to indirect discrimination: ‘where there is formal equal treatment between women and men, but where this treatment impacts disproportionately on women’ (Bagilhole 2002, p.113) to more explicit forms of sexual harassment. These findings resonate with those of Mavis Bayton, who found a number of gendered barriers that keep women from becoming live sound engineers and recording technicians, such as incompatibility with family life, and sexism and gender discrimination (1989, pp.221-224). However, respondents seldom identified discrimination as a structural problem. Instead they define it as the product of archaic attitudes from a minority of individuals, or a routine and inevitable aspect of working in a male-dominated occupation which women as individuals must overcome or ignore. The majority of both male and female respondents expressed such views. This is similar to the situation among women rock musicians, who ‘respond conservatively to tokenism since there is not much they can do to prevent it. Trying to fight tokenism is futile when there are too few tokens to join together’ (Andolsun 2004, p.81).

5.6.1 Parenting

The long hours and late nights of sound engineering employment, both live and in the studio, ultimately disadvantage women, who still shoulder the majority of the responsibility for domestic work and child-rearing. This
amounts to structural gender discrimination, though it is indirect in nature. The opportunities for advancement in sound engineering are increased for women who either forego having children, or have a partner who is able and willing to share domestic responsibilities. As recent studies show, not many men are willing to do this: an Equal Employment Opportunities Trust of New Zealand report indicates that childcare and domestic work is not being shared equally, and that men are less likely to be able to contribute to this domestic work due to the long hours they spend in paid employment (Equal Employment Opportunities Trust 2009).

Only four of the women I interviewed had children, and of these, parenting had affected all of their careers either as musicians or sound engineers. Sandra, who works sporadically as a live sound engineer for local bands, knew the importance of having a supportive partner who contributes to child-rearing while she works:

[My partner] is such a good father. He doesn’t mind staying at home if I want to go out [to work]. He’s really good like that. He doesn’t say, ‘I’m going out with the boys to drink’ or whatever, he’s not one of those sorts. He would actually prefer to be at home with his daughter than go out to the bars. But I know women who have had children and they are artists and musicians and their partners look after the children while they go off and do their own thing. So it really depends on what the partner’s like (personal communication, 9th December 2005).

Maria, in contrast, is the single mother of a teenager. As a sound engineer she has ample freedom to work late at night when she has the rare opportunity because her son no longer requires adult supervision. A composer and teacher of electroacoustic music, Natasha found single parenthood to be a juggling exercise. She was able to manage because of shared babysitting networks and the childcare systems in place at the campus on which she worked (outside of New Zealand). New Zealand afforded less opportunities
to combine her work and family life: ‘I think it might be a bit harder here because you don’t have the same sort of set-ups’ (personal communication, 12 August 2005). Laura’s work as a sound engineer has changed considerably since she began. Initially she worked freelance as a live sound engineer but eventually moved into employment in post-production sound for film. As a parent, she describes film post-production work as ‘more mothering friendly’, and adds that parenting has changed her career in other ways:

It’s meant that I can’t be so career focused because I have to put [my daughter] first. I could if my partner … wanted to stay home, and he works freelance so there are periods of time where he’ll look after her more and I’ll be able to do more music projects or that kind of thing (personal communication, May 10 2006).

Like Sandra, Laura finds that having a partner to share parenting with facilitates her own sound work.

I interviewed eight men who were parents. For most of them, parenthood had limited, if any, impact on their careers as sound engineers, even for Gavin who described himself as a ‘home dad’:

It is a juggling act, but at the same time, the thing that suits me about the live scene, that a lot of the work, the installs and the packouts you can do after hours… Its my fulltime business … So I can do it as and when I need to and if I need to get childcare I go and get childcare (personal communication, 13th December, 2005).

Most of the time Gavin’s wife looked after their children while he worked at nights and in the weekends. For three fathers, parenting meant changing their work patterns. Rob gave up freelance live work in the evenings, and had acquired employment mixing live bands during the day so that he could spend more time with his family.

I’m thirty-six, I’m pretty much over doing live [shows at night] now. You can do it for as long as you like but I’ve just had enough of it. It’s a bit more of a priority for me to be able to spend time at home with my family, not be out at 3am and get up at 11 o’clock, which is really hard to do when you’ve got a toddler because they want to
get up at 7am. If I can work from home or work better hours that’s the main thing (personal communication, May 15th, 2006).

For Ben, parenting meant he had to forego international travel opportunities that his work brought. In contrast, David continued to engineer sound on international tours, but his time periods overseas were reduced so that he could spend time with his family: ‘I have to take time off to come back because of that. So I can only tour for two or three months at a time and then I come home for two or three months’ (personal communication, 2 February 2006).

The twelve parents in my study exemplify the fact that parenting affects the careers of both women and men in sound engineering. Live sound engineering and recording work tend to involve working late at night for long time periods. A touring sound engineer will be required to spend extended periods of time away from home. This is incompatible with family demands. However, the effects of the double load of parenting and work are disproportionate for women sound engineers, because women are more likely to take primary responsibility for domestic work and childcare than men. Mothers’ options in sound engineering were often dependent upon childcare from partners, friends, or formal structures. For one single mother, sound engineering gigs were only possible now that her teenage son was old enough to no longer need adult supervision. Only one father mentioned being restricted from late night sound engineering activities. For two other fathers, international tours were either curtailed or not an option, but local gigs were still part of their regular working lives. For most other fathers, parenting had not affected their working lives at all, largely because their wives handled the majority of parenting responsibilities. Significantly, of all of the women respondents with regular paid sound engineering employment, only one had children. For those respondents who were parents in this study, mothers were
the primary caregivers, and therefore fathers were less constrained than 
mothers from working as a sound engineer, whether live or in the studio.

This situation indicates that the ‘ideal worker norm’ is a fundamental 
structuring force in sound engineering work, as in many other occupations, 
especially those that are traditionally male. These occupations assume an 
ideal worker who is committed to their job above all other personal 
commitments, is freely available to work when and where the job requires, 
and is able to put in long hours (Williams 2000, p64). This ideal worker is 
implicitly a traditional male, either single or with a traditional wife who is 
responsible for all domestic and child-rearing tasks. An ideal worker is a 
workaholic who is geographically mobile, and whose family comes a distant 
second behind work in his priorities. Only single women can mold 
themselves to fit the ideal worker norm, and even then, not always, as women 
are more likely than men to take on caregiving roles for aging and sick 
relatives. Formal recording engineering employment, with its work-through-
the-night norm, requires a freely available worker with no domestic 
commitments. This is an intrinsic disadvantage for women, who must either 
forego having children or struggle to compete in an environment structured 
against them, and for non-traditional men. There is no reason why recording 
engineering work must be structured in this way. Shorter shifts during the 
daytime, and job-sharing could make recording engineering more amenable 
to women with dependents needing care.

Similarly, live sound engineering work, both formal and informal, also 
implies an idealised traditional male worker, aside from the heavy lifting 
requirements discussed in Chapter Three. The majority of gigs happen 
outside usual working hours, and in the case of tours, require geographic 
_mobility. Again, this requires a worker with no external impediments or
commitments, a traditional male. What does a primary caregiver do with her children during a late night gig, let alone during a music tour? Childcare facilities are not readily available outside usual nine-to-five working hours. A tour of New Zealand might take two weeks, and one would be hard pressed to find someone willing to babysit for such an extended period. An international tour can take months. Perhaps it is time that bands, entertainment corporations and sound companies recognised that in employing an ‘ideal worker’, they are implicitly employing two workers: one to do the job and another to service the worker’s domestic needs. From acknowledging that they are actually employing two workers, and paying them accordingly, it is only a short step to employing a child minder for touring sound engineers who are parents, or allowing them to bring their partners on tour. This would be an attractive arrangement for fathers as well as mothers, given that contemporary men such as Ben and David like to take an active, engaged role in parenting.

5.6.2 Recruitment
Recruitment is another area in which women face discrimination: ‘crucially, the very first obstacle that women face with male-dominated occupations is making it through the recruitment process, be it formal or informal’ (Bagilhole 2002, p.100). None of the women respondents had been able to tell me of instances where they knew for certain they had not been hired because of their gender. Nonetheless, I encountered evidence that some prominent New Zealand PA companies and recording studios are unwilling to hire women, even in entry-level volunteer positions. One sound engineer told me he believed that discrimination was prevalent in PA companies, and that it was erroneous.
So it was a club that you had to join, and one of the main ways of joining the club was hauling speakers around. So there's that aspect as well. A lot of PA companies won't employ women because you have to be really strong.

There's less heavy lifting involved. [But] there still is a lot of heavy lifting, there's a lot of gear. I've heard it specifically when I've mentioned to bosses of mine, to people that I've been contracted to when they've said, 'Fuck, we can't find any crew for this show, do you know anyone?' Everytime I see [a particular female friend], she says, 'Any work going with [PA company]?' And she knows what she's doing with sound… she's been on tour, she knows how a show goes. But the response [from the PA company] has been 'Oh, it's a big one, there's a lot of speakers, we need someone who can lift.' And [my female friend is] actually as big as me, she's got broad shoulders and stuff, but there's still the perception that because she's a woman she can't lift as much. Now the lie to that is … a lot of it is just flipping stuff and catching it properly, you don't actually have to be that strong. You let gravity do a lot of the work and you find out how to lift things easily. So women could do it (personal communication, 15th December, 2005).

I became suspicious of the recruitment practices at a prominent recording studio after a conversation with the managing director in which he told me that there were no women audio engineers because women do not have the innate understanding of technology that men do. If this individual truly believed that women are not as technically capable as men, it seemed unlikely that he would ever consider hiring a female applicant at his studio. I was unable to secure an in-person interview with him, but his views were iterated in a series of questionnaires. He responded to the question of why there are so few women recording engineers as follows:

Wayne

I think this is because of the hours and the technical nature of the recording business. In order to be an audio engineer it is almost a prerequisite that you are a technical junkie by nature.
He also mentioned having taught at a sound engineering course, and described his perception of differences between male and female students:

The main difference I found was that girls tended to be academically advanced. They (girls) did a much better job of the assignments and exams. When it came to recording girls would tend to follow instructions to the letter and would therefore do good recordings, but I found that whilst they were working the equipment, their understanding of the technical issues was much less. For example, if a problem was to happen and the class notes could not be followed they had more trouble than the guys in adapting to the situation and with a true understanding of the working of the recording equipment (some guys at least) a solution was usually found (survey questionnaire).

The managing director believes that women lack a ‘natural’ aptitude for technical work compared to their male counterparts, a lack that even disciplined study would not improve. I problematised the discourses of sexual difference with regard to technical work in greater depth in the section 4.3. Notably, Wayne places blame on female students when they cannot understand their class notes: he does not call into question his role as a teacher, that is, an effective communicator of knowledge.

Women who had studied sound engineering in formal training courses recounted being warned by instructors of the gender discrimination they were likely to face in recruitment processes.

**Anna**

But we had been told as well that being girls might not be an advantage when we look for a job. … They said, not always, but we have to be aware that mostly its men working in the industry and that some people might not want to employ us because we’re women (personal communication, July 6th, 2005).

**Bronwyn**

I remember when I was a student … we had a guest lecturer in here one time and he said to me, he was looking directly at me, and he said, ‘You’re going to have a really hard time getting a job in the industry’. And I said, ‘What do you mean by that?’ He
said, ‘Well if you want to work in a recording studio you’re going to have a really hard time. I’m not saying you can’t do it, I’m sure you’re really able to do it, but there’s a lot of prejudice out there’. And I said, ‘Well I know that but I don’t care what you say’ (personal communication, May 19th, 2006).

Hearing about the possibility of facing gender discrimination was discouraging for Anna, but Bronwyn decided not to let it deter her from her goal.

It is reasonable to suggest that, despite the equal opportunities legislation in place in New Zealand, discriminatory recruitment practices can easily persist in recording studios and PA companies, without being explicitly acknowledged by those who are responsible for hiring of staff. It is doubtful that any manager would admit to such practices in an interview. Nonetheless it is logical to suppose that such prejudicial attitudes toward women will lead the perpetrator to discriminate against them in employment. Thus I conclude that current anti-discrimination legislation, while a necessary step in countering the exclusion of women from male-dominated occupations, is of limited efficacy.

Surprisingly, one respondent did admit that, were he in a position to recruit staff, he would discriminate on the basis of gender.

**Bruce (music producer)**

Basically to me at the end of the day it’s a person who can do or can’t do a job. That’s it. It doesn’t matter. Having said that, if there was a female who could do it and a male who could do it, I’d probably choose the guy, because males feel comfortable with males. That’s the way it is I think (personal communication, 12th December, 2005).

Bruce’s statement affirms the view long held in sociological research on women and employment that women in male-dominated occupations pose a
threat to the homosocial order. Homosociality as described by Jean Lipman-Blumen is

the seeking, enjoyment, and/or preference for company of the same sex... It is a process that is noticeable in early childhood and is channelled and encouraged by the entire range of social institutions within which males live. The stratification system, which ranks individuals and groups in terms of their value to society, systematically places males in more highly valued roles than females (1976, p.16).

Because of a homosocial worldview, men attempt to protect control of resources, through systems such as occupational sex segregation. Authors have variously identified key characteristics of male homosocial milieus as the exclusion of women (Bird 1996; Flood 2003), sexism (Bird 1996; Flood 2003); male bonding and the establishment of a ‘boys club’ (Flood 2003); competitiveness (Bird 1996; Flood 2003); boasting (Flood 2003); and an emphasis on physical prowess (Flood 2003), all of which are evident in sound engineering for popular music.

The largely male management of PA companies and recording studios are able to determine the criteria for recruitment, according to masculine standards and perceptions of physical prowess. The words of Wayne and Brett above suggest that women are excluded from formal sound engineering employment because men perceive them to lack the strength for heavy lifting and to lack technical expertise (refer back to chapter three for a comprehensive theorisation of the ‘problem’ of heavy lifting for women in sound). Since women are no less able than men to lift heavy equipment and operate a recording console, women are being excluded from such work because of a social system where men prefer to work with people they perceive to be like them, that is, other men, therefore maintaining sound

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37 Homosociality appears to influence the representation of women musicians and fans in the British rock music press, according to Helen Davies (2001), although she does not investigate the extant feminist theorising of this concept.
engineering as a homosocial occupation. Fortunately for many women who have pursued sound engineering, some men (and other women) sound engineers have acted as mentors, offering support, training and employing them. Establishing supportive networks is one way in which women negotiate their minority status in sound, as I argue further in section 5.7.1. Generally for aspiring female sound engineers, the options for training and employment are tightly circumscribed. Further evidence of the construction of sound engineering as unsuitable for women due to discourses of sexual difference which construct women as lacking in physical strength and technical skill, was discussed in sections 3.4.2. and 4.3. respectively.

5.6.3 Sexist Hostility

Sexist hostility is an extremely common experience for women sound engineers. It is a form of gender discrimination in which its perpetrators denigrate, disparage, discourage, patronise and second-guess women. Not all men express hostility toward women in sound. Many women have in fact found that the encouragement and support they receive from men is invaluable. However, hostility is so regularly and widely encountered that it can be perceived as the natural and uncontroversial fact of a male-dominated occupation.

Women in sound routinely encounter sexist hostility from a number of different sources, not just from other sound engineers. It can also come from producers, musicians, venue managers, audiences, audio engineering instructors and even students. Women’s individual experiences of it vary, but the effect of feeling unwelcome and excluded is consistent. For example, Sandra experienced sexist hostility from a venue manager and sometimes also from audience members.
and [the venue manager] doesn’t like women sound engineers. Because I know one of the other women in town, they basically had a big argument about it because he didn’t want them to mix. So it’s still going on, this sort of thing but I mean I’ve never had … aggro from musicians. Occasionally you get the odd drunk come up and want to mess with the board. Usually you just have a bit of a laugh with them and they’ll go away (personal communication, 9th December, 2005).

Sandra believes that sexism is not particular to the music industry but is a wider social problem. She is adamant that not all men have rigid views about gender roles, but those that do tend to harass women for deviating from these roles. The implicit assumption at play when a man tries to take over a woman’s mixing job is that the woman, by nature of her gender, is unfit for the job and the position behind the mixing desk is a man’s natural domain. Such behaviour is an endorsement of discourses of sexual difference that position men as technically adept and women as technically incompetent.

Sandra’s explanation of the sexism she has encountered also reveals her personal coping strategy: audience members undermine her authority as a sound engineer by trying to take over her mix, and her response is to make light of it, as though it is a joke. This was not an unusual response: a number of women respondents related incidents of male audience members and sound engineer colleagues attempting to elbow their way behind the mixing desk, and it was fairly typical for such behaviour to be downplayed, considered a triviality. In the context of the masculine culture of sound engineering, such an approach may be wise. In the drunken atmosphere of a live music venue, to confront the sexist assumptions that underpin this male behaviour runs the risk of a verbal altercation or even a physical one, which could have physical and long-lasting psychological and emotional effects on a woman, making her work less attractive for her. It could also damage the sound engineer’s professional reputation and client base. After all, in the climate of ‘client service’, sound engineers who assert their own needs and
rights may lose customers. However, women sound engineers who underplay the sexist behaviour and its effects allow the discursive production of sexual difference to continue unchallenged. Insofar as they fail to challenge such attitudes, the discourses will remain in circulation, upholding the continued masculinity of sound engineering culture and maintaining an environment that is hostile to and therefore unattractive for the aspiring woman sound engineer.

Another usual experience is for male musicians and sound engineers to presume a woman sound engineer is not a sound engineer at all, and ignore her. Anna was ignored by musicians, and excluded by her sound engineering peers.

First of all as a girl usually they don't consider you as sound engineer, usually they think you're the girlfriend of that guy or that you're some girl who hangs around and that's my experience (personal communication, July 6th, 2005).

The girlfriend stereotype to which Anna refers and which a number of other women sound engineers also mentioned typically abounds in other male-dominated industry roles. Sarah explained another variation of this stereotype in the recording studio when a client told her how he liked his coffee, assuming that she was the coffee girl, not the sound engineer. One common assumption about women rock musicians is that they are the girlfriends or groupies of men in bands. The gendered division of labour, which has as its foundational basis a marked division of the public and private sphere, evidently underpin the assumption that women are only present in music where they are servicing men in some way, either sexually or domestically. According to this logic, women are out of place in the public sphere of music-making, and are only present in the music industry where they represent the private sphere of servile sexuality and domesticity (Green 1997). This is not altogether dissimilar to other mistaken assumptions about
women that circulate in the music industry, such as when women instrumentalists are assumed to be singers. As Lucy Green (1997) suggests, singing is thought to be an appropriate musical activity for women, as it affirms patriarchal conceptions of femininity through its association with the body and feminine sexual display, and as a result it is devalued as a musical skill. Women drummers, who Green (1997) would argue ‘interrupt’ the traditional conventions of musical femininity, are met with disbelief when they inform people which instrument they play (Andolsun 2004, pp.69-74).

Some male students initially ignore Bronwyn, their audio tutor, expressing their own sexist hostility. She claims she has received no discrimination from her colleagues at the audio engineering course, and her solution to hostility is to persevere, and she believes she eventually accrues the respect she deserves.

I don’t think anyone discriminates here at all. I don’t see why they would, the times are so different. You get a few students that do. I’ve had quite a few actually that just won’t ask me for help. And I get really pissed off. There have been a few times with new intakes when the guys come through, they assume that I’m the receptionist, or they’ll be like, ‘Where’s [the male tutor]?’ [I reply,] ‘He’s not here, can I help you?’ ‘Oh no I’m trying to find [the male tutor], and I’m like, ‘Well what’s the problem, I might be able to help you’. Then they tell me, and I’m like, ‘I can totally give you the answer to that question’. They might do that a couple of times, but after that they don’t bother. They realise that I’m not just some token female. I’d hate for anyone to think that and I’m sure there are a few people that do but who cares, whatever. That’s their problem (personal communication, May 19th, 2006).

Bronwyn’s response is also characteristic of the ‘coping strategy’ that women in sound often deploy in order to survive the unwelcoming anti-female climate: she downplays the sexism. The contradiction at work in her statement is telling: nobody at the audio education facility discriminates; the students assume she is a receptionist and not a sound engineer. This begs the question: on what basis do students assume she is a receptionist? It is purely
on the grounds of her femaleness. This is discrimination, and Bronwyn’s coping strategy of de-emphasising sexism means that she fails to recognise it as discrimination and while this enables her to avoid confrontation it also enables the students to continue to make sexist assumptions because they have not been challenged and overturned.

The words of Rebecca suggest that some men in sound exclude women by deliberately communicating information in obscure, incomprehensible ways. In Rebecca’s case, the academic staff at the audio engineering school at which she studied were particularly ineffective.

Rebecca

Just the way the tutors would talk to us, there was one tutor who would say, ‘It doesn’t just happen, its not like magic’. And it’s like, why would you say that to me? Do you say that to the boys, that it’s not just magic? Its like they were treating me differently, that they weren’t expecting the same of me. That impression was very immediate. Simple things like in class we’d have examples of music all the time and of course it was always like horrible guitar boy rah rah music all the time and it was just like, far out. I actually told the tutor, ‘Can we actually have some strong female figures being played in class’. Cos the only time there was a female vocalist it was like ‘I want my boyfriend back’ or something, singing this horrible, terrible song…Also the teaching methods were – you know how they say these days that in school environments, the teaching environment isn’t very sympathetic to boys? Well that’s how I felt like it was at our school, except the other way around. Like it wasn’t sympathetic to women, the way that women maybe learn or communicate. In a bunch of like 25 boys, there would often be girls asking questions and so forth, and the boys would just sort of sit and there and have no questions. I guess girls seem to be a lot more vocal or a lot more questioning, and it just felt like it was a bit of a boys club sometimes. The way that they taught wasn’t an open thing for everyone to absorb easily (personal communication, June 20th, 2005).

Rebecca draws a very vivid picture of the way that masculine culture shapes the sound engineering classroom and how this effectively excludes women in the class and sets them at a learning disadvantage to men, for whom the
audio classroom is structured. Female students are at a numerical disadvantage, numbering only a few compared with twenty-something males. The (male) tutors talk to female students in a condescending way that belies their assumption that women cannot grasp the skills of sound engineering as easily as men can. Most of the class content was masculine, featuring male bands who sang about male experiences; feminine musical examples were only used where they conformed to patriarchal conventions of dependent heterosexual femininity. A gender divide was evident in class participation too, in that male students wanted to appear to understand what they had been taught by not asking questions; female students on the other hand were in a vulnerable position when they asked questions, potentially revealing their ignorance. Rebecca, instead of downplaying the masculine learning environment in order to avoid confrontation, questions why it doesn’t include women students and make the classroom a welcoming supportive place for them to acquire sound engineering skills. Rebecca evidently rejects the discursive production of sexual difference that would position women as outsiders to the music technology classroom.

Many women typically negotiate the assumption that they will not be competent at their job, and sometimes feel that they have a point to prove about women’s capabilities.

Helen
Occasionally you get people who come up and want to talk to you about your mix, and you know that they wouldn’t approach you if you were a man. So there’s this real sense of people passing comment, and I think if I was a man you wouldn’t come up and offer to help and stuff like that. Sometimes it comes across as slightly patronising, because no male engineer would ever go up and offer to help another male engineer. It just wouldn’t happen. But they’ll come up and say ‘I’m an engineer so if you have any problems let me know’. It’s like, ‘Thanks bro but it’s all sweet, and
we’ve had a great soundcheck so no worries, but thanks’ (personal communication, 5th December 2005).

Behaving in a patronising way is one of the manifestations of sexist hostility. In Helen’s case, she found that a number of men would approach her at live gigs while she was at the mixing desk. They would offer to help her. She experienced this as an implicit question of her ability to carry out her job, and is adamant that male engineers would not get the same treatment.

Sarah

I am sure that in some situations I’ve had people who thought that they could walk over me a little bit more because I’m a woman. Like also at [my work] there were a couple of older technicians who would sometimes come up and do something to my mix. You don’t do that to an engineer! It’s really rude to walk up to the desk and to change something on their mix, and I’m like, ‘You wouldn’t have done that if that was one of the guys’. But then I have since seen them do that to the guys. But not quite as much (personal communication, May 18th 2006).

In Sarah’s case, this implicit questioning of her ability to fulfil her sound engineering tasks manifested in sound engineers physically altering her mix. It is common for some men to discriminate against women sound engineers by questioning their ability to do their job. This is further evidence of the circulation of discourses of sexual difference, in this case one which defines men by their technical prowess and women by their technical incompetence.

There is an element of surveillance at play here, in Helen and Sarah’s relationships with male engineers: like Foucault’s prison guards, some men constantly scrutinise women sound engineers as if waiting for them to make a mistake. Helen is yet another sound engineer whose response to an incident of sexism is to downplay it and cope instead of challenging it. That this coping strategy is so widespread among women sound engineers shows the extent to which women as women have been disempowered and marginalised within this masculine culture: they feel only comfortable in asserting their
right as an individual to work in sound, but they do not feel comfortable asserting that right as women.

For Jasmine, the sexist hostility of sound engineering resulted in an incident of outright sabotage.

Jasmine
The bigger ones that own the companies, I’ve just had some really nasty ones. This guy who dropped off his PA … [h]e thought he was supposed to be doing it and then I turned up and he was told, this is the sound engineer, and he got all like, ‘Oh well she’s not using my gear’ and tried to pack it all in his van. Then someone whipped out the contract and so he had to go back on it and he was all snarky. He did things that would trap me, like he gave me a snake that would go from the front of house desk to the stage, and it should be about 15m, but he gave me a 1m one. I can’t do anything with that. He was about 60. Just little things, just really not being helpful (personal communication, 13th December, 2005).

Jasmine has encountered some explicitly hostile attitudes from sound company technicians, who showed reluctance to her using their equipment even though it was contracted for her to use. One even gave her the wrong equipment. She feels she is not shown as much trust as a male engineer would be.

A number of male respondents also had stories to tell of the way women sound engineers are discriminated against, and were sympathetic.

Adam
[The female sound engineer I worked with] definitely got treated differently, so much doubt would continually come over about her skills as a mixer and she mixed a lot of [my band]. But I was managing the band so I was taking care of all the details, and it happens, see, if I got her to do the mix, the soundcheck would happen when it was meant to happen and all of that. Whereas with [my bandmate] who was the songwriter, if he was going to arrange it with his stoner mate, it may or it may not happen on time and then he’d have to deal with it… So I’d go, so why don’t you mix? It’d be good for you. You know about my drums, at least I’d be working with
someone for whom the drums would be a priority. So I kind of liked that as well.

Women are generally more receptive; on the whole, women don’t have that macho thing (personal communication, 29th June, 2005).

Adam knew a female engineer whom he liked working with in his band. She was capable and efficient and understood how to mike his drums the way he liked. However, his band-mates were sometimes doubtful. Adam attributes his woman engineer friend’s abilities specifically to her gender: mobilising gender essentialism, he characterises women as better at listening and understanding and lacking in machismo. In order to contradict the discourse of sexual difference that positions women as technically incapable, Adam endorses a reverse discourse that suggests women are in some ways superior sound engineers to men. This is an admirable sentiment in the sense that Adam displays his openness to sound engineering becoming a gender-egalitarian culture, but it is not a strategy this author would endorse. As argued in chapter three, reverse discourses are unlikely to lead to a feminisation of sound engineering insofar as they may be easily co-opted and deployed for sexist purposes.

It may be argued that discriminating attitudes are only superficial and reflect the gender beliefs of a few problem individuals, and that women can overcome this discrimination by persevering in their jobs. However the volume of such complaints indicates that sexist hostility against women in sound is pervasive and contributes to a hindering, dissuasive atmosphere for them. For the most part, women merely cope with the masculinist environment by viewing sexism as a triviality, a problem of individuals that individuals must overcome. In the absence of any collective and sustained female opposition to anti-female hostility in sound engineering, the sexist behaviour is allowed to flourish unabated.
5.6.4  Sexual Hostility

Sexualised forms of antagonism are sometimes directed towards women in sound engineering. While not as widespread as sexist hostility, it was mentioned by a few respondents. It is noteworthy that men were more cognisant of sexual hostility in sound. This suggests that such animosity is communicated largely in the absence of women. It also indicates men’s awareness that such behaviour is unacceptable in public and could compromise their employment. Nonetheless, in the absence of women, sexual hostility persists, attesting to the hidden misogyny of a number of sound engineers. As Brett explains:

Brett
From what I know of women working in traditionally male-dominated areas, they have to be even more persistent than guys in order to be taken seriously. I think women would have to be really fucking persistent to even get a look in. Whereas, as I say now, things may change, hopefully. I tell you it can get annoying when you’re in a van with a bunch of smelly boys and the only thing they’re talking about is the tits on that last bitch. I’m just thinking of a guy on one particular tour I had, who really fucked me off. It was all he talked about (personal communication, 15th December 2005).

Brett went on a rock tour with no women, where sexually explicit conversations about women’s bodies and the use of sexist language were common. Such discussion would be less acceptable in the presence of women, who may take exception to it, but in the absence of women, sexual hostility can often be left unchecked.

Lucas suggested the inability of men, in particular himself, in the music industry to desexualise the recording studio environment in the presence of a woman. In this regard he also assumes heterosexuality of men in recording.

Lucas
The only thing that I would say that is coming to my mind while I’m talking is that it can sometimes be difficult working with women from a male point of view, in the
aspect of distraction … Quite often you’ll see musicians in a relaxed way in a studio, and then a woman will come in, a girlfriend or an acquaintance or just a friend of mine or something like that, will come into the studio, and their whole persona suddenly changes. They’ve been really focused on the music and then all of a sudden the male ego kicks in and … they’re trying to play up because there’s a woman there. Trying to show off a bit and that kind of thing. It totally distracts from the mood of what’s going on in the studio. It takes half an hour after a woman’s gone out of the studio to try and get the guys to concentrate on the music again. Their head’s gone off into their groin, you know. I’m probably as guilty of it as the next man but that’s a male weakness. That’s true in every aspect of life. Generally a man will start to think less clearly when there’s women around (personal communication, May 23rd 2006).

He suggests women are an annoyance and a distraction, and since men cannot help but view women in a sexualised way it is better to penalise women by excluding them from the recording studio. His words betray not only sexism but also heterosexism, and bring to mind the discussion of the gendered division of labour in the previous section, where women are deemed intelligible in the music industry only insofar as they are sexual beings appealing to heterosexual men.

One woman claimed her audio tutor was distracted in a very similar way by women students:

Yvonne

There was one tutor who had this problem, when he was talking to you his eyes would always flick down to your breasts constantly, it was happening all the time. I would look at him shake my head, and think, what are you doing? But he couldn’t stop himself. I talked to the other girls about it and they said, yeah, he does it to me too … So there was that which was fucking horrible. But I got along with them alright but it was quite a blokey environment so you could see that they definitely were more comfortable around the guys than the girls (personal communication, 11th December 2005).

Yvonne and her female classmates believed their tutor was staring at their breasts, and it was a source of discomfort for them.
5.6.5  *Unwanted Sexual Attention and Sexual Coercion*

Unwanted sexual attention was mentioned by only one of the respondents, and for her it occurred in the learning environment. The female students brought legal action against the tutor concerned and it resulted in him losing his job. Anna explains:

One of my friends got hit on by one of the teachers and it ended up in court and it made the whole course awkward for girls. We had to have meetings after every lecture for the girls to talk about the big issue that was going on. And the school tried to smother the whole thing because it’s not good for their image, so they tried to just totally ignore it, but it just didn’t work and it had to go to court. And it was just a big deal, so it just didn’t help.

It was only one [teacher]. He asked [one of my classmates] to stand up and turn around and he said ‘Oh, nice’. I always wear boyish clothes and one day I just didn’t, I just was wearing something different, and he said to me, ‘Oh, I’ve never noticed you had breasts before because you always wear baggy things’ and I just didn’t really know how to take it cos I thought, you know, maybe I’m just being silly, maybe he’s just joking or something.

They all went to a concert. It was a lot of students from our class and he went to the concert, and he hit on one of my friends who is probably three times younger than he is, and she just saw him as a teacher. She really liked him as a teacher but I think he saw something else in that and he tried to kiss her (personal communication, 6th July, 2005).

Anna’s story is a testament to the necessity of legislation against sexual harassment that feminists secured for New Zealand women - legislation such as the 1993 Human Rights Act. Given that it was the only report of unwanted sexual attention from my respondents it also suggests the effectiveness of the legislation. Unfortunately for Anna, the damage had already been done because the unwanted sexual attention made the classroom a difficult environment for the women in her class to work in. Further to this, the reports
of sexual hostility and the overwhelming pervasion of sexist hostility suggest that sexual harassment legislation in its current form does not dissuade men from sexually harassing women sound engineers in less overt ways.

Sexual harassment is one of the ways in which the private domain of sexuality and the public domain of work can be seen to converge, with negative repercussions for women. As Catherine MacKinnon states, it ‘undercuts a woman’s autonomy outside the home by sexualizing her role in exactly the same way as within the family: sexual imposition combined with a definition of her work in terms which serve the man’ (1979, pp.216-217). Its effect on women can be profound, making the workplace (or in Anna’s case the classroom) unwelcoming and hostile. Even though Anna and her classmates successfully brought legal action against the perpetrator, the effects of the harassment made the classroom, in her words, ‘awkward’ for women. For women who already must contend with their under-representation in the classroom followed by under-representation in the studio or at the gig, sexual harassment is yet another cumulative disadvantage.

5.6.6 Positive Discrimination

One female respondent found that being treated differently on the basis of gender was a positive experience. She co-owns a recording and PA business and finds unloading and reloading the van before and after a gig difficult when doing it on her own. She prefers to load in and load out for live gigs when one of her business partners is helping. However, on the rare occasions where she has had the sole responsibility of sound for a live gig, people on the street are willing to help her lift.

Tania

I have loaded the van almost by myself before and there’s random people in the street who are like can I help you with anything? And that’s how it always is in this
industry, like it’s unusual. People are always willing to help you. So it’s not a bad thing. There should be more females doing this because there’s always people willing to help, there’s always people willing to do it. There’s no reason females shouldn’t be doing it (personal communication, May 16th, 2006).

Tania was offered help with heavy lifting because of her gender, and she was grateful for this help. This contrasts strongly with Jasmine’s earlier statement that offers of help with lifting were patronising. Another respondent thought that being a woman may have contributed to her being offered a job as an assistant in a recording studio, where she helped set up equipment, dubbed and edited for recording sessions.

**Tara**

I think they were probably nicer to me than they might have been to the young guys. I probably got given the job [assistant in a recording studio] I was given – I don’t know, I don’t know if it was just me and I got along with them really well or because I was a woman. But I do remember that there were other young guys who used to come in and look for work and they didn’t get it and they certainly weren’t treated as nicely as me and if there was mistakes made they would get told off whereas I wouldn’t (personal communication, 7th February, 2006).

Tara did not find the work inspiring and eventually left the studio to become a musician.

These two respondents reported instances where being female may have been advantageous in their work in that the men around them have been more helpful than they might otherwise have been had Tania and Tara been male. Tara and Tania experienced this gendered treatment as positive, however, they were the only two female respondents to mention positive discrimination. Viewed through the theoretical lens of performativity and discursive power, their positive experiences take on a more sexist cast. If we recall that a dominant discourse of sexual difference in sound engineering is that of female technical incompetence, it can be argued that Tara and Tania
are complicit in their own disempowerment. The men around them position them as technically incompetent due to their being female, and offer them help in their work. By accepting that help, Tara and Tania are also accepting being positioned as technically incompetent, and go so far as to perform that technical incompetence, reiterating the discursive production of sexual difference in sound engineering. It must be noted that most of the women and some of the men I interviewed reported that women sound engineers experienced differential treatment in their work. While in some instances this differential treatment was felt positively, overwhelmingly the women respondents reported the differential treatment as gender-specific and much of it was experienced as negative.

It must also be noted that a few male respondents felt that they had experienced hazing from other sound engineers. Hazing accounts for a degree of women’s negative experiences in sound. However, routine hazing behaviour intensifies when the subject of such hazing is female. The hazing of women tends to hinge specifically on discourses of sexual difference. Men who were hazed did not report a specifically gendered dimension to the hazing. In addition, hazing does not account for the harassment women engineers routinely received from non-sound engineers.

5.7 Negotiating Discrimination

The previous section explains the preponderance of discrimination against women in sound engineering work. Because of this prevalence, women sound engineers become very adept at maintaining their resolve to continue their work. Typically, whether consciously or unconsciously, women sound engineers develop strategies for coping with the problems of being in a gender minority. Rather than simply accepting discrimination as a natural
aspect of working in a male-dominated occupation, they tend to negotiate the discrimination, finding ways to make their jobs more pleasant for themselves. It is a testament to their strength and determination that they do not allow themselves to be discouraged by unwelcoming, antagonistic attitudes and behaviours. Glover and Kirton note that ‘women who succeed in non-traditional skill areas are particularly resilient and determined’.\textsuperscript{38} Despite such strategies, discrimination persists ultimately because the source of discrimination has not yet been sufficiently addressed, challenged and Overturned. Nonetheless, women sound engineers’ ability to negotiate discrimination reiterates my claim, echoing Green (1997), that musical patriarchy is not an unchanging monolithic structure but rather that it is alterable and responsive to challenge. While challenging musical patriarchy on a one-to-one individual basis, the women respondents in this study have ultimately not been able to overturn the discourses of sexual difference that maintain their disadvantageous position in sound engineering. I contend that more overt anti-sexist collective strategies are necessary to dismantle the masculinist culture that pervades sound engineering so that it can become a pleasant occupation for the women who work in it and a more attractive job for women who aspire to it.

Women sound engineer’s negotiations of discrimination widely vary in their form. For instance, Anna and her classmates could not overlook the unwanted sexual attention addressed to them by their audio engineering instructor. The escalation of his behaviour, which culminated when he tried to kiss one of Anna’s classmates, spurred the girls in the class to take legal action against him, which was successful. Other women did not see the necessity of taking a formal institutionalised approach to dealing with discrimination. Generally, they found either one of the following four approaches useful in reducing discrimination:

discrimination: developing networks of supportive colleagues; proving themselves by demonstrating their abilities; using one’s communication skills to encourage amiable relations; and seeking more women-friendly working environments such as women’s gigs.

5.7.1 Supportive Networks

One way for women sound engineers to create a more sympathetic and welcoming work environment is to establish networks of colleagues that they know will support them, and to avoid those who will not. As mentioned earlier in section 5.6., not all men in the music industry discriminate against aspiring or practising women sound engineers. Women have found also that a number of men have been very supportive of their endeavours and have helped them along the way. Sandra, Janet, Bronwyn and a number of other respondents recognised the importance of establishing such networks, and were grateful for the encouragement and assistance they received from men (and other women) in the industry.

Sandra

I guess it’s just a general thing in the world that if you’re a woman you’re going to find it a bit tougher than boys. Which pisses me off. But you never give up on any of this shit. There are always good men out there. There are always good men who will support you. If you come across a few that are assholes just don’t worry about it and stick with the ones who are going to support you (personal communication, 9th December, 2005).

Sandra claims that discriminating behaviour from men can be discouraging but if women in sound seek out men who will encourage and support them then the problem is mitigated.

Establishing supportive networks is exemplary of women’s coping strategies for working in the masculine, often sexist environment of popular music production. One could argue that it also demonstrates Arendt’s anti-
essentialist notion of solidarity: in this case, some men are able to welcome women into sound engineering and support them in their work across gender lines. This also illustrates that it is possible for femininity and sound engineering to be seen as compatible, in spite of the dominant discourses that suggest otherwise. As yet, solidarity across gender lines is a limited strategy for effecting change. Arendt’s notion of solidarity entails explicitly political collective struggle. Insofar as these supportive networks focus on supporting individual women in sound engineering, not women as a social group, they are ineffective in disestablishing the masculinist culture that militates against women entering sound engineering on equal terms to men.

5.7.2 Woman-Friendly Environments

As women, female sound engineers are aware of their scarcity in the occupation. Because of their experiences, they are often conscious that some men will try to discourage them from their work by discriminating against them on the basis of their gender. Some of the respondents expressed the view that women in the music industry can accommodate and assist each other in order to achieve equity.

Maria

I think from the woman engineer side of things there’s a slight advantage in that if women choose to have women-only gigs, then who are they going to call? I kind of like that, that there are only a few girls doing it. Whereas hundreds of guys offering their services. So that’s quite sweet in a way (personal communication, 30th June, 2005).

Women-only gigs, according to Maria, provide an ideal opportunity for women musicians and women engineers to support each other in an industry peopled heavily with men, and in the process initiate creative collaborations.
Bronwyn
If I have a few students, girl students that go, it’s so cool that you’re here. It’s so good that we’ve got a lady around (personal communication, 19th May, 2006).

Female students appreciate having Bronwyn as a tutor, because they have a role-model to look up to, living proof that women can master the skills it takes to become a sound engineer.

Sarah
I think that we’re still trying to get there, we’re still trying to get to a place where we are treated equally, and we still do have a way to go. I also think that there needs to be a bit of female solidarity, there needs to be a bit of us giving each other a hand up... (personal communication, 18th May 2006)

Sarah sees the need for women to create supportive networks with each other to gain a foothold in the music industry.

Laura
But really at that time boys were a lot more prominent. So I guess just being really aware that there was a bit of an imbalance, why women weren’t in those roles, being a sound engineer or being an equal mix in the bands, the gender balance in people performing. So it’s something that I’ve always felt like supporting and still do, because I don’t think things have changed that much (personal communication, May 10th, 2006).

Recognising that the music industry is still male-dominated, it is important to Laura to support other women in music and in sound engineering, making the adverse environment a little more welcoming.

These respondents have identified that the under-representation of women in sound engineering is a gender issue, and their response could be characterised as feminist, in that they explicitly devote energies to enabling other women to establish themselves as sound engineers. As a coping strategy, it is expedient for women to make use of these woman-friendly women who are offering their assistance. As a political strategy for overturning the masculine and anti-woman culture of sound engineering, its
effectiveness is limited. This strategy does not seek to challenge the male values and sexist discourses that prevail in sound engineering, and it does not explicitly challenge the purveyors of these values and discourses as a group thus it cannot hope to change them. While the strategy is suggestive of collective solidarity, it does not extend the networks far enough nor does it adopt an explicitly political agenda which would raise the awareness of gender discrimination and its effects on a wider scale.

5.7.3 Proving Oneself

As representatives of the gender minority, women in sound bear an unusual burden. Not only must they excel in their work as all sound engineers must do, but there is an added pressure of having to excel on behalf of their entire gender. If they make a mistake, they fear it will be read as proof of their own and their entire gender’s perceived inability to work effectively as sound engineers. Men in sound engineering can avoid negative expectations: because they are predominant, there is no suggestion that they may not be able to do their job by virtue of their gender.

Bronwyn

I didn’t want to look like a dork in front of everyone else. I felt like I had a point to prove as well. That’s something that I should mention, that I felt like I had a point to prove as well, just because I’m a girl, because there were a couple of people in the class who totally didn’t give me the time of day. They were quite rude to me, so I’d always be like, I need to be better than the other boys in the class, and I really tried, I really wanted to be better than everyone else just so I could prove that I could stand alone and do it myself (personal communication, 19th May, 2006).
Bronwyn shouldered the burden of attempting to prove to her audio classmates who dismissed her because she was female that she was equal to them in capability, if not better.

Anonymous 4

But I worked really hard on that stuff and that was a really amazing experience because I’m pretty sure that’s never happened before, where a woman’s won prizes at [the audio engineering course] and it felt like we had actually proved everything wrong, maybe, all these judgements maybe of what we were capable of, and even if it was just in our head, which I don’t think it was, but even if it was it felt like a certain achievement had been made and we proved that we can take it out. So that was really quite an amazing day.

I think I felt when we were setting up and there were people around, I had to set my own equipment up. I didn’t want the boys to set up my equipment for me, because I had to prove that I was a capable equal person in the band, that I had to prove those things to people. Or I sometimes felt I had to go out of my way to show that I was accomplished or that I knew what I was doing, because I wanted to just put up a good front so that I’d be taken seriously, you know.

When this female respondent won two of the class prizes at her audio course, it was a very poignant moment, because she felt that she was proof that sexist assumptions about women in audio were unjustifiable. She also felt the need to prove her capability as a musician, by demonstrating that she was equally able to set up her own equipment at sound check.

Such stories have much in common with women’s experiences as rock musicians, who are also in the minority in their creative work: they are highly visible but struggle to have their achievements recognised, and their success or failure as musicians is seen to reflect the abilities of all women rock musicians (Andolsun 2004, p.45, p.50). It would appear that women sound engineers face a similar dilemma to women in other male-dominated music industry occupations. Those women who succeed in sound engineering do so
as individuals. In the absence of a collective political movement expressly for women’s advancement and the dismantling of masculinism in sound engineering, women sound engineers who are superior in skill to their male counterparts can continue to be viewed as exceptions to the norm of female technical incompetence.

5.7.4 Interpersonal Skills

Women sound engineers may not always be able to avoid discrimination by relying on supportive networks of men or of women. They may for instance take a job where they do not know what to expect from clients. In such situations, it is sometimes valuable to have effective communication skills or to be socially adept. Renee and Maria both mentioned the need to adapt their personalities to unfamiliar situations, but their particular approaches vary. Renee suggests she needs to behave differently than usual towards some clients to maintain an amiable atmosphere. On the other hand, Maria expressed that as a woman in sound she would garner more respect from men if she were assertive with them, rather than adopting a subservient demeanour that they might otherwise expect from a woman.

Renee

I think because it’s so male-oriented you have to assess the situation first. And you say, ‘Is it ok for me to just go in and do what I need to do or do I need to go and talk to the person in charge and do it a different way?’ (personal communication, 6th April, 2005)

Maria

I think that’s another thing too is that you get a lot more respect from men if you don’t treat them how maybe its expected, like they are more dominant than you. There’s always things that men do try to dominate but they just have to try and get over that really, because unless they can prove that they can do something better than you, then they’re only good at that one thing, they’re not good at everything (personal communication, 30th June, 2005).
Women in sound demonstrate their agency and their determination simply by persevering in a non-traditional occupation. Their agency is further expressed in their methods for coping with the possibility and the reality of discrimination. By creating supportive networks – of both men and women – in the music industry, women sound engineers can minimise the chance of experiencing discrimination. In the unfortunate but common event of discrimination, they deploy their communication skills to counter negative attitudes, or they set about proving sexist attitudes wrong by performing their job exceptionally well. In the event that neither strategy is effective, they may resort to legal action.

I do not wish to minimise women’s negotiation of discrimination in sound engineering. Insofar as they challenge attitudes on a day-to-day individual basis, such strategies are somewhat effective. However, all of the strategies outlined above treat discrimination as a localised issue and as a problem of individuals, without permeating the wider sound engineering culture that upholds masculine values, practices, and militates against women’s involvement. The pervasiveness and persistence of gender discrimination suggests that it is much more widespread. Discrimination against women in sound engineering is and will remain a responsibility of the music industry so long as the industry fails to acknowledge and address it. Gender discrimination is a product of the discourses of sexual difference discussed in sections 3.4.2. and 4.3., discourses which suggest women are not capable of or suitable for sound engineering. So long as the music industry fails to discourage such discourses and continues to construct and perpetuate them, they will persist. It will take a collective, co-ordinated and sustained effort to combat them.
5.8 A Sound Education in Audio?

Training courses in sound engineering have existed in New Zealand since the 1980s. However, the establishment of MAINZ and SAE in the 1990s, and the certificates, diplomas and degrees offered by institutions such as the Southern Institute of Technology in Invercargill and WPIT in Waikato have developed and refined the training. Nevertheless, the position of formal education in sound engineering within the occupation is not well defined. Are courses a valuable foundation for a career in sound? A number of professional sound engineers question this, yet others are wholly positive about their function in preparing aspiring sound engineers for work in the industry.

The majority of women I spoke to had had some formal sound engineering education. As in professional sound work, they were in the minority in the classroom, and this came with its own set of concerns, some of which have been discussed in the previous section on discrimination. Overwhelmingly, women who had undergone sound engineering training found it very beneficial in that it enhanced their understanding of and skills in the work enormously. Yet a great number of them did not immediately find secure paid employment in sound after graduating. Other options in starting a sound career include training on the job at recording studios, live music venues and PA companies. Professional sound engineers generally agree that training on the job is the best way to begin a sound career, but there is evidence that some companies discriminate against women at the very initial recruitment stage, and this is not even to speak of discrimination on the job. In contrast, institutionalised sound engineering training is open to women, but a number of professional sound engineers question its value. I argue that formal sound engineering training is only advantageous to women insofar as it enables them to create, record and perform as musicians more effectively. It
does not appear to guarantee women paid employment as sound engineers, and can sometimes work against them.

5.8.1 The Discursive Production of Sexual Difference in Audio Engineering Education

Feminist theorists have long been concerned with the plight of women in science and mathematics education, and the impact it has on women’s choices for scientific and technical careers. Valerie Walkerdine presents a very sophisticated argument against the view that women and girls perform poorly at mathematics. In contrast, she argues that girls and boys have similar levels of attainment in mathematics from primary school and through secondary education. The problem is that mathematical attainment is discursively constructed as masculine, and this is where we see some commonalities with how the female audio engineering student is positioned in the audio classroom. While Walkerdine asserts that women’s under-participation in mathematical-related careers is a problem, she suggests it results from mathematical ability’s discursive association with masculinity. No matter how much girls excel in mathematics, their achievements tend to be downplayed, because they are perceived to be ‘lacking’. ‘Real understanding’ is constructed as the standard of success in Mathematics, but many teachers imply through their educational attitudes and practices that it is something that boys have but girls lack. In contrast, where girls ascend to high levels of Mathematical achievement, their success is attributed to ‘low-level’ skills and the product of ‘rote-learning’ and ‘rule-following’ (1990, p.65). Under these discursive limits, when girls perform well in mathematics it is not considered evidence of excellent mathematical understanding but instead posited merely as evidence of hard work, which is associated with mathematical mediocrity. ‘The outcome is a lack of equal opportunities in school mathematics and lowered expectations for girls, with some girls’
successes at mathematics being discounted’, states Paul Ernest, and continues to note:

Their lower participation rate and take-up in mathematics leads to women getting reduced (unequal) opportunities for entry to study and work. … This concerns those occupations involving scientific and technological skills (1998, p.9).

Therefore, by the time they are ready for tertiary education, women are already being filtered out of scientific and technological pursuits, such as formal tertiary-level audio engineering education. This accounts for their lower participation rates in such courses, where their enrolments typically fluctuate from 0% to 33% of all enrolments according to a staff member at one sound engineering school. Another school provided me with precise enrolment figures for the years 2001 through 2005, and for each intake female enrolments made up between 0% and 23% of total enrolments. On average, over this five-year period, women represented 12% of all enrolments. Furthermore, the total number of women graduates was only around half of the total number of female enrolments. It would seem that this particular audio engineering school struggled to attract female students and then to retain them once they were enrolled. By this stage in their life course, women have already internalised the discourses about their inferior mathematical ability, and this has a negative impact on their self-belief and restricts the higher education and careers they believe to be open to them, including sound engineering. Where they do enter formal education in audio engineering, sexual difference is discursively produced in a very similar way to its manifestation in primary and secondary school mathematics education.

39 For a New Zealand-specific examination of the discursive production of gendered and class subjectivities in primary and secondary school education, and in particular, mathematics education, see Walshaw (2005, 2006).

40 Comparable figures of retention rates for male students were not available. On several occasions, I requested this information from the audio engineering education institution to no avail.
The students that are interested in tinkering with the gear, turning the knobs and pushing the faders and scrolling through screens of parameters, the nerd factor, are similarly interested in that. It’s just when we get to that stage, as I mentioned to you before, it seems to me … that those interested in doing that are primarily males. I know of no women who have come to me and said, ‘I really want to get inside this piece of gear, I really want to get to know all the parameters. Can I take a manual home and take a bit of gear home?’ (We lend people anything they want, pretty much.) Take it home; take it away over the weekend. But no woman has approached me asking for that. Whereas males, I would have that request two or three times a week and would be happy to oblige…The women tend to say, look I don’t care how it does it, I just want to make this sound. What do I do?

I mentioned the washing machine analogy. Women don’t care how the washing machine works. They want a long wash, deep rinse, fast cycle, push play and off it goes. Mind you I’m the same with washing machines; I don’t really care about washing machines. But when it comes to synthesis, and synthesizers I find that men are more interested, or women are less interested, either combination that you want to say. That is an observation I have made over the last – this is my eleventh year teaching. I’ve taught in Wales and London, in Malaysia for several years and Singapore for a couple of years, and Australia. This is across culture, across everything. As far as I’m concerned, just me personally, it’s just highlighting the fact that women probably process information differently. That would have, twenty years ago, been considered a sexist comment, and I think that feminism twenty years ago was of the opinion, not that men and women were the same but it’s just our environment in which we’re brought up. But [my knowledge] of MRI scans pointed me to a lot of studies that were done back when MRI first came out, when you would get men and women across different ages and cultures and ethnicities and everything, and get them to identify an object or write their name or to add two numbers together in their head. Then you look at the areas of the brain that light up and then compare that with males. There are different areas lighting up, consistently the same areas for the two different groups of gender. So suddenly it means that it’s plausible to suggest at the very least, because we know different areas of the brain are

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41 I have included this very long quote from Jason because it is rich with several questionable assumptions about sexual difference which I go on to deconstruct.
responsible for different cognitive processing, that men and women are thinking differently, or are at the very least processing information differently (personal communication, 4th May, 2006).

Jason teaches audio engineering at an audio engineering education facility. He is heavily invested in discourses of sexual difference that suggest men want to understand the internal operations of technical equipment; women, in contrast simply want to know how to operate the equipment. Although he carefully avoids making value judgements about which approach is better, a value judgement is implicit: if men understand how and why the machine’s components are put together and operate the way they do and women do not have such understanding, then men’s understanding of the equipment is by implication more thorough. There are similarities here with Walkerdine’s findings that girl’s successes in mathematics are downplayed by positioning them as lacking in ‘real understanding’. Note also that Jason alludes to his teaching experience in the UK, South East Asia and Australia to argue that the gender differences are the same cross-culturally. He positions himself as an expert whose knowledge is not simply confined to New Zealand but holds internationally. Cross-cultural research on women in mathematics and science studies and occupations does not support his claim. In Scandinavian countries, women have achieved parity with men in such occupations, and in Latin, Latin-American and Caribbean countries the same is true and in some cases women even outnumber men (Ernest 1998, p.3). Nor does Jason demonstrate an awareness of social studies of technology which since the 1970s have consistently shown that technology is a social product, in contrast to assumptions about its neutrality. As Virginia Caputo remarks, music technology ‘is created by complex human beings with their own agendas and biases’ (1994, p.87) situated within the ever-shifting matrices of class, race, ethnicity and gender that inevitably influence the design, construction and
use of the equipment itself. In turn, this affects the context of its use, in this case the audio engineering classroom. However, by failing to consider how sexual difference shapes music technology and the unavoidable corollaries this has in the audio classroom, Jason implies that technology is neutral and autonomous. It is, in his view, simply that girls do not and do not wish to understand, and he helps to maintain their disadvantage by discursively reiterating their difference from boys.

Wayne, formerly an audio instructor at an audio engineering education facility, employs the very same discursive formation in a slightly different way.

Wayne

The main difference I found was that girls tended to be academically advanced. They (girls) did a much better job of the assignments and exams. When it came to recording girls would tend to follow instructions to the letter and would therefore do good recordings, but I found that whilst they were working the equipment, their understanding of the technical issues was much less. For example, if a problem was to happen and the class notes could not be followed they had more trouble than the guys in adapting to the situation and with a true understanding of the working of the recording equipment (some guys at least) a solution was usually found (survey questionnaire).

He does not mince words: boys are more likely to have ‘true understanding’ of the technologies of sound engineering. Girls make good recordings but only because they refer to the class notes and ‘follow instructions to the letter’. Their successful navigation of the recording studio to produce an effective recording is construed as no success at all but evidence of inferior technical skills. Thus we can see this discursive formation permeates tertiary-level education in audio engineering, figuring audio technology as a male-domain
of which men have ‘true’ understanding. Women, in contrast, are believed to lack such understanding, and their attainment in audio is refigured as the product of rule following and rote-learning, hence it is no attainment at all but evidence of their technical inferiority.\textsuperscript{42} Within this discourse, boys in the sound technology classroom are positioned as natural experts with hardware and software, a trend also noted by Armstrong who cautiously reiterates its constructed nature (2008, p.383-384). With such discursive formations circulating all levels of education, it is no wonder that women are under-participating in audio engineering education. It is more of a surprise that they bother to enrol at all, having had plenty of opportunity in previous education to lose motivation for mathematical, scientific and technical pursuits because their success is repositioned as a failure and evidence of inferiority.

5.8.2 Benefits of Sound Engineering Courses

Women whose introduction to sound engineering is through formal academic training, largely reflected positively on the courses. Aside from the creative control with which it equips them (see section 3.4.3.), they often find it increases their confidence with musical equipment, particularly sound recording and reinforcement technology.

\textbf{Sandra}

I think what I like was I felt quite confident when I went out and did it and that’s why the course was really good. I wasn’t over confident but it just gave me that extra knowledge of where everything was, what certain things did on the desk. Even little things like setting up and packing down the stage, you know, winding up your leads and putting your microphones away and looking after all that sort of gear was really important. It gave me a lot of confidence so that when I finally did go out and do it

\textsuperscript{42} Green (1997, pp.200-207) notes a similar phenomenon in secondary teachers’ evaluations of girls’ and boys’ music compositions. Despite the girls’ preference for free composition tasks and the boys’ for structured tasks, their teachers characterised the girls as industrious rule-followers and therefore lacking in genuine creativity while the boys were deemed brilliant despite them not applying themselves.
on my own I didn’t feel like I was a fake. I felt like I could actually do this, and I did it which I thought was quite good (personal communication, 9th December, 2005).

Sandra’s sound engineering education enhanced her confidence in herself as a musician.

**Jennifer**

I mean, two main things: one thing was that I would never have had access to that sort of gear anywhere else, and I think especially for women it tends to be very hard because boys share their toys and that’s why I reckon there are still so many singer songwriter women out there, because actually we don’t get to play with gadgets. So it was because if I wanted to have access I kind of had to do a course and also I had no idea about anything, and also I didn’t know how to use a computer. So anything, it was really good, like, if you put heaps and heaps of energy into and just make use of all the facilities its really good. I think that was probably the key for me (personal communication, 23rd May, 2006).

Sound courses can be an ideal place for women to learn their craft, according to Jennifer, because outside of education, males are not as willing to share their equipment and their knowledge with women. Audio education was an arena in which Jennifer could come into her own by making the most of the access to the recording technology.

As evident from these respondents, formal sound engineering education has advantages for women. It is a controlled environment where gender discrimination is, at least nominally, frowned upon and it gives women access to recording technology, access that they would not typically have outside of the classroom. However, I will show in the following sections that formal education in audio engineering is not entirely a gender neutral experience, but one in which sexual difference is further discursively endorsed, resulting in women’s ambivalence and outright marginalisation.
5.8.3 Ambivalence about Formal Academic Training

While positive experiences with formal academic training in sound were most common, some women were more ambivalent. On the whole they found their course material to be enriching, and to have contributed to their knowledge of and confidence with sound equipment. On the other hand, male classmates could be a source of annoyance in that they sometimes pestered their female classmates. Worse, problematic teaching and even sexist teachers could hamper the learning experience. Anna gave a detailed account of the unwanted sexual attention she and her female classmates were subjected to by a tutor. Not all ambivalent experiences were quite so extreme. Nonetheless, one cannot underestimate the extent to which the attitudes and conduct of classmates and teachers can impede the learning process for women in sound engineering courses.

Gina

DS: And the male students were okay with you guys?

Gina: Sometimes they could be a little bit pushy with taking over mixing, but we sort of stood our ground and got our stuff done. It was quite good (personal communication, 27th June, 2005).

Gina found that her male classmates were inclined to try to take over during mixing and she and her female peers had to ensure they had a fair chance to use the console too. The fact that this happened reflects negatively on their teachers, who might have used their position of authority to ensure that all students received their fair turn on the equipment. Male monopolisation of equipment is a common problem in advanced education for scientific and technical subjects, as pointed out by Whyte (1986, cited in McLaren and Gaskell 1995, p.137). It is typical of the music technology (and composition) classroom too (Armstrong 2008, p.380) and is a corollary of males perceiving the scientific or technical classroom as already their domain. This can also happen in audio engineering education. Gina’s report corroborates Armstrong’s findings – like the music technology instructor, the audio
engineering instructor finds little cause for concern or intervention when male students attempt to exclude women from quality time with the sound equipment.

Carla
D: It sounds like you get on pretty well with the tutors.
Carla: Mmm.
D: And your classmates?
Carla: Yep, most of them. The ones I don’t get along with, or don’t really like them, I just don’t bother talking to them, because they say really dumb sexist shit all the time so I’m just going, ‘yuck’. It’s weird because I don’t think they expected so many girls to be on the course (personal communication, 22nd June 2005).

Male classmates can make the learning experience unpleasant for their female classmates by making sexist comments, as was the case for Carla.

It appears that even in a supervised environment such as the audio engineering classroom, sexist behaviour can flourish. This situation is not without precedent: McLaren and Gaskell (1995) found similar dynamics operating in a Canadian high school physics classroom. They suggest that in the science classroom, ‘boys may feel freer to harass girls ... By reading the culture, which suggests that science is a male domain, boys can easily reproduce these messages’ (McLaren and Gaskell 1995, p.148). We have already seen how sound engineering is constructed as a male domain through a myriad of institutional and individual practices that tend to persist unchallenged. In the sound engineering classroom, male students have already absorbed the male associations of sound engineering work and the music industry more broadly, and seek to maintain their status by harassing their female classmates. Several girls mentioned harassment from male classmates as a negative facet of their learning experience, and most indicated that the girls in the class were left to counter harassing behaviour themselves.
Their tutors mostly did not communicate that such behaviour is unacceptable. Students could interpret their teachers’ silence on this issue as assent to it. Without a clear signal from tutors that gender harassment is unacceptable in the classroom, one wonders how male audio graduates learn that it is also unacceptable in the workplace. Gender harassment does not contribute to a welcoming learning environment for women in the class.

A few respondents complained further of problems with their (mostly male) teachers.

Rebecca

There was always that kind of like ‘I know this, you don’t’ sort of thing going on, like they didn’t want to give away their secrets or something, and it was kind of like, fuck, you’re teachers, man! Get on with it. That’s why you’re a teacher (personal communication, 20th June, 2005).

Jennifer and Rebecca found their classmates less of a problem than their teachers, particularly those who were not effective in communicating their knowledge, or seemed reluctant to share ‘trade secrets’, most unhelpful attitudes in a teacher. In Rebecca’s case, forming helpful and reciprocal relationships with other students facilitated learning. McLaren and Gaskell describe girls forming similar relationships with their male classmates in high school physics, but they point out that this is a difficult double-bind for the girls:

One reason some girls relied on boys was because the girls were fearful of their science teachers or were dissatisfied with the teachers’ responses. Though the boys may have intimidated and harassed them, the boys were also often friends, and were more approachable than the teachers. Some girls had little choice but to turn to the boys (1995, p.149).
Comprising a gender minority in the audio engineering classroom, women students will likely already feel like alienated outsiders: most of their classmates and typically all of their teachers are male. McCartney (2002, p.162) similarly notes the alienating effect that the predominantly male classroom has on women students in university-level electroacoustic composition courses. Any alienation is compounded when they are excluded from using the recording equipment by boys with a grand sense of entitlement, and when they are subjected to the exaggeration of sexual difference through gender harassment and ambivalent treatment.

5.8.4 Questioning the Value of Formal Courses in Sound

People employed in sound engineering occupations often have very strong views on academic training in audio engineering. Of all those I spoke to, only one, the managing director of a recording studio, believed formal training to be a strong basis for a career in sound engineering, and he often employed graduates from the courses. Others were less positive, characterising graduates as either formulaic, lacking in technical skills, inexperienced, impatient, or headstrong. Some were of the view that graduates were unemployable as sound engineers. Sound engineering courses came under criticism for misinforming students and for prioritising profit over education.

Ben

Personally I think that their [training courses] main purpose is to make money for the educational institute. They’re training a lot of people in something they’re never going to work in, because there aren’t enough jobs. They don’t train people for our industry at all, in my belief.

DS: What do you think is lacking?

Ben: Well very much lacking practical skills. I think it should be an apprenticeship-type thing, an older style apprenticeship where the person works in the job and has short training courses for theory and that kind of thing. I just think the modules are
completely wrong for this type of work because a large portion of the work is practical, hands-on and experience. I’ve seen a number of people come out of those courses and start in the industry, and most of them might as well have never done the course. It didn’t do them much good at all and they might have spent one or two years training. But when they arrive they’re only slightly better than somebody who just walked in off the street, and often I’d rather take a musician if they wanted to do this sort of work because their listening skills are often far more advanced and if someone can listen and know the difference between good sound and poor sound, a lot of the differences between how sound should be and how it shouldn’t be, then you can teach them how to use the tools to fix it. But somebody who knows how to use the tools but can’t tell the difference between good and bad sound, they’re almost unteachable [sic] (personal communication, 19th December, 2005).

Another discourse criticises sound engineering courses on the grounds that they are ‘money-making machines’. Sound schools entice students into studying something that will not realistically lead them into formal employment because there is a shortage of sound engineering jobs. Ben suggests their motive is profit, rather than education, and believes that a thorough grounding in sound engineering requires more practical experience than a sound course can offer.

**Sarah**

I’ve seen so many young guys come out of those courses thinking that they know everything and not been willing to be told anything. It’s just like, fuck, it doesn’t matter if you know 90% of what I’m saying, if you shut up and listen to it, you’re going to learn 10% of what I have to offer. ... But it’s so frustrating when you’ve been working the system for the last three or four years and someone new has come on and you’re trying to show them how it works and they’re like, oh yeah, yeah I know. They won’t let you tell them anything. Its like, how did you learn anything if that was your attitude? ... I think a lot of people come out of them not knowing how to deal with clients. If you’re doing post-production studio work and you’re dealing with a director, you’ve got to know how to deal with them, because you can’t pull attitude with directors because they just go, okay, see you later, and take their work somewhere else. You’ve got to actually eat a bit of humble pie sometimes, and you’ve got to know how to express if something’s going to be better. If you know that
they’re making the wrong decision, you’ve got to know how to communicate that to them without pissing them off. (personal communication, 18th May, 2006).

According to Sarah, audio engineering graduates typically believe they are already experts in sound recording, and because of this, when they come to work at a recording studio, they are reluctant to be taught anything new. She suggests they are lacking in interpersonal skills too, skills that are indispensable for interacting with clients in what is essentially a service occupation.

Laura
I get a little bit cynical about education at the moment and that’s why I’ve had to step out, in that they really just seem to me like moneymaking machines, and … they’re run like businesses and they’re not about creating wonderful interesting bright lights. It just seems to be about making money and running a business and trying to get the biggest possible student ratio to the minimum of teachers and so institutions like SAE and MAINZ, I see them doing that, and it’s not that there aren’t people within those institutions that aren’t really passionate about what they teach but they all tend to get a bit tired and burnt out and pissed off because they tend to get screwed down for time and not getting paid. So there’s definitely people within that who have really good positions and they feel really good about it and well remunerated and feel really good about giving their time and teaching, but that’s fairly rare. So they just want to get lots of people in and chug them through and there’s not many jobs for them out the other side, realistically they’re not actually preparing them for any real market that’s out there. ... So I don’t think that it’s completely necessary for people to do those courses if they want to get into the business. But having said that, if they’ve got the money to do those courses and they will probably learn a lot of skills – I think somewhere like MAINZ is really good if you want to set up your own little home studio and become a hobby musician, its probably really fantastic. And it does give you a basic understanding of the whole sound engineering thing. ... But I just don’t necessarily think that – I think that those kinds of places are trying to sell people their dreams. It’s not realistic as to what’s out on the other side - pluses and minuses (personal communication, 10th May, 2006).

Laura’s comments echo Ben’s when she suggests that SAE and MAINZ are run as businesses first and foremost, and educational matters are lower in
priority. Arguing that their main motive is profit, she believes they do not equip students with the skills they need for formal employment in the music industry. In her opinion, audio courses are ideal for the musician who wants to set up a home recording studio but ultimately they promise more to students than they can deliver.

David

Just occasionally you come across the odd student who’s come out and you kind of have to shake your head and wonder, what did they learn, because I think maybe too much theory and not enough practice. My take on the whole thing is that if you want to be an audio engineer and mix bands, is to get out there and do it, because you can read all you like about it, until you’re physically on the desk and twisting those knobs, I don’t think your understanding of it really comes to you. Having said that, I’m learning things all the time. You always learn in this job because the technology changes all the time, and there’s so much more that I could learn, if I went and did a course like that, on the theory side. So there are two sides to it. But I think what really counts is experience (personal communication, 3rd February, 2006).

Extensive practical experience is, again, privileged over formal education, in David’s view. He suggests that some of what the audio courses teach is unnecessary or even wrong.

It would appear that a great many traditionally trained sound engineers – at least in the New Zealand context – are hesitant to employ audio school graduates. According to a number of sound engineers, formal audio education affords students at best knowledge that is better enhanced and supplemented by extensive hands-on practical experience, and at worst incorrect information and unrealistic expectations of jobs in the industry after graduation. These sound engineers’ beliefs contrast strongly with Porcella’s findings. He argues that alongside changes in the recording industry that have seen the closing of many independently owned recording studios, formal sound training has become deeply entrenched as a prerequisite for
recording engineering work (2004, p.736). Other studies contradict Porcello’s optimism about employment opportunities for audio school graduates: on-the-job sound training has more prestige than formal audio schooling, the former of which is viewed as bestowing a more thorough education (Horning 2004, p.719). Thus there is debate over the value of formal audio education for budding North American sound engineers. If the American context has anything in common with the New Zealand context, then the employment opportunities for audio school graduates are limited at best.

Education is a double-edged sword for aspiring women sound engineers. On one hand, it equips them with sound engineering skills and technical confidence that they desire, despite sometimes finding the learning experience hindered by irksome classmates and difficult tutors. Unfortunately an inordinate number of formally employed sound engineers believe academic training in audio engineering to be a career setback. They are critical not only of the courses themselves but of graduates and sometimes represent them as unemployable. It is likely that women graduates of sound engineering courses are doubly disadvantaged when they attempt to secure employment in the occupation: by prejudiced attitudes against their gender and against academic sound courses. I argue that sound engineering education, while providing the most accessible avenue for women to learn about sound engineering, is also contributing to their marginalisation within the occupation.

To begin with, the ‘hidden curriculum’ of audio education is thoroughly gendered, in the following ways. Women are under-represented as teachers of audio engineering, meaning that female students often progress through their courses lacking female role models. They are outnumbered by male teachers and male students, making it difficult for them to envision themselves as
successful women sound engineers. Their male teachers may be uncomfortable around women students, or may lack teaching skills, proving an impediment to women’s learning process. As a result, women students may come to rely on their male classmates for help, but this help comes at the risk of being belittled by them in sexist ways. Thus in the audio engineering classroom, men and women learn about sound engineering as a male culture, a culture that is mirrored in the recording studio and at the live gig, a culture that is unsupportive to women.

When women students, against the odds, manage to graduate with a sound engineering certificate, diploma or degree, they enter a labour market in which they are dismissed as women, and their training is devalued. Whether male or female, the audio engineering graduate is cast by professionals in the music industry as lacking in practical experience, equipped with unnecessary knowledge, formulaic in approach, and too arrogant to be able to absorb any new skills. This disadvantage is compounded where women graduates are concerned, because femaleness and sound engineering are already, as I have extensively demonstrated, discursively construed as incompatible.

It is by no means by wish to suggest that formal audio education is worthless. Indeed, women audio graduates relish the skills and knowledge they have acquired. However, given the devaluation of audio education in the wider popular music industry, it must be made clear to prospective students that the best they can hope for is to acquire knowledge that will enhance their work as musicians and perhaps enable them to establish a modest home studio. The prejudice against them in the industry suggests that formal employment is an unlikely outcome. The problem for women is that, with or without this formal education, they are largely barred from the informal training avenues that lead to formal employment in sound engineering. It should come as no
surprise then that under these constrained circumstances, women look to audio education to become sound engineers, but unfortunately this is unlikely to lead to successful formal employment for them. Women with sound engineering education seldom enter into formal sound engineering employment, thus the occupation remains male-dominated and strongly horizontally segregated. Negative attitudes towards sound engineering academic training effectively compound the gender segregation within the music industry, disadvantaging women who seldom have any other route into the occupation.

### 5.9 Conclusion

Popular music studies and ethnomusicology have produced a great deal of research on musicianship as a male dominated occupation. However, scholarship on gender segregation in other music industry roles has been meagre. Because of this, the gendered division of labour in the music industry is not yet adequately understood. Sound engineering for popular music is structured by gender segregation, in that it is horizontally and vertically segregated. Women in the music industry are scarce in sound engineering jobs. Women who are sound engineers tend not to be in formal paid employment, instead working in devalued informal, often unpaid production work. In paid employment women sound engineers are subject to many forms of discrimination, the most common of which is sexist hostility. This discrimination is further evidence of the discourses of sexual difference that are the foundation of the music industry. The music industry in this way is a technology of gender: it produces - and is produced by - prevailing notions of polarised gender and associated gender attributes. Academic sound engineering courses, despite being open to all adults regardless of gender, cannot overturn this gender structure so long as working sound engineers
malign them. In fact, insofar as the audio classroom is an environment where aspiring female students are subjected to sexual harassment from classmates and teachers, it will continue to reproduce the gender structure.
6 Conclusion

Sound engineers comprise part of the creative team that shape the very sounds of popular music. Although they share sonic input with musicians, and, in the recording context, with producers too, they are typically responsible for the technical components of recording and live event production. Sound engineers have access to the technical tools of sound production, and specialist knowledge of how to operate them, and therefore are in a position to exercise power to advance their interests. They are able to influence the aesthetics of popular music production. They are also the main gatekeepers for entry into the job, involved alongside clients in a dialogue that defines the parameters of sound engineering work: who may become a sound engineer, and what a sound engineer knows and does. It is not merely that sound engineers play a pivotal role in their use of sound technology, but they are active agents in the production of a social technology: the music industry. As a social technology, the music industry is implicated in the production and dissemination of discourses of race, gender, ethnicity, age, class, ability and sexuality, among other factors. My work extends academic studies of popular music that examine the machinations of power by contributing a philosophical definition that understands its tripartite nature comprised by subjugating forces, individual resistance and collective solidarity. From this theoretical base I am able to provide a unique analysis of gender relations in popular music production that explores the interaction of agency and constraint, particularly for women.

Both live sound and recording engineers are situated at the nexus of two male-dominated enclaves: technical work and musical production. In this thesis, I revealed the discursive formation in sound engineering as it pertains to gender, thereby developing Thomas Porcello’s (1996) discursive analysis of
a Texan recording studio. Prevalent is the discourse of choice: people are putatively free to choose a career in sound engineering and there are purportedly no obstacles to obstruct the path of anyone intent on fulfilling this desire. Therefore, it is believed that if women are entering sound engineering in fewer numbers than men it must be because they are exercising their personal choice not to do so. Women and men have achieved equality, it is supposed, and there is nothing preventing women from entering any occupation of their choice.

My research adds to the abundant literature of feminist labour studies that debunk this myth of choice and expose legislation for gender equality in work opportunities as ineffective. The choice to become a sound engineer is more difficult for most women to make than it is for most men, and therefore it is not a truly free choice. A variety of sexist practices dissuade women from becoming sound engineers. They are routinely discriminated against at the recruitment stage: female contenders are regularly passed over, even for unpaid on-the-job training opportunities, in favour of male applicants. Women who venture into sound from the alternative route of formal education find themselves a minority in the classroom with few, if any, female teachers to look to as role models or mentors. They may experience gendered put-downs from their male classmates that often go unnoticed and unchallenged by teachers, and it is typical that they must jostle aggressively with male students for use of the recording facilities. They may encounter male teachers who fail to teach the course material in a digestible way, who seemingly deliberately withhold vital information, who patronise them, or, in extreme cases, sexually harass them. If the budding woman sound engineer is resilient enough to persist past these impediments to graduation, she enters an insecure job market where those studios and sound companies that might
benefit from her training will more than likely be dismissive of it, favouring the informal apprenticeship-style method of induction into the occupation.

Upon entering formal employment as a sound engineer, a woman will usually encounter hostility from fellow sound engineers but also from musicians, producers and audiences. Some of this hostility can be attributed to hazing, a practice that male and female sound engineers alike are subjected to. But some of the hostility is decidedly sexist and cannot be ascribed to generalised hazing. Experiences common to women sound engineers include disbelief that they are sound engineers, reluctance to work with them because they are women, sabotage of their work, withholding information, patronising attitudes and blatant sexist discrimination. Because these forms of sexist hostility have proceeded without any persistent challenge they are best considered institutionalised discrimination. Institutionalised discrimination is also apparent when sound engineering is incompatible with family demands – and the majority of it is. Late nights, long shifts and touring rule out tending to home and family, responsibilities that women continue to shoulder disproportionately. Unless they work as a freelancer from a home recording studio, women are disadvantaged relative to men when they have a family.

The practices that discourage women from sound engineering work are numerous. I found indisputable evidence that the notion of personal choice applied to sound engineering work is a misleading fallacy. There can be no freedom for women to choose to become sound engineers because there is no equality of opportunity. My structural analysis of sound engineering, influenced by feminist labour studies, explicitly connects popular music production to the patriarchal processes of gender segregation at work. This association has seldom before been made in popular music studies, and my work demonstrates that, as a creative and entertainment industry, the music
industry is by no means exempt from similar relations of sexism that structure non-artistic industries. Certainly, sound engineering is structured by gender relations in ways not altogether dissimilar to other traditionally masculine occupations such as engineering and academia.

Assumptions about equality are equally manifest in technologically deterministic discourses of popular music production. It is not uncommon to encounter the perspective that new music technologies have democratised popular music – such perspectives are well documented in popular music studies (Theberge 1997; Taylor 2001). Because digital technologies are relatively inexpensive and have flooded the market, anyone, it is supposed, may purchase a computer, install the requisite software, and become a musician, a sound engineer and a producer all in one. Such erroneous suppositions even penetrate academic literature on occasion (see Attali 1985; Moorefield 2005). Even when it is the target of critique, the democratisation of technology thesis still informs much of music technology studies, wherever scholars fail to distinguish technology’s effects for women and men. An implied assumption that technological developments have the same corollaries for men and for women gives license to the technological democratisation thesis. This very discourse has been widely criticised within the sociology of technology and science. It presumes a situation where technology is autonomous from society but has the capacity to alter it and ignores the fact that technologies are themselves socially shaped from conceptualisation, through development and even in their consumption. With regard to gender, digital music technologies are far from democratising, given that women continue to be constrained in their access to the aforementioned technologies by institutionalised sexism. My study consolidates the claims already effectively argued by Theberge (1997) and Taylor (2001), that the democratisation theory of technology overlooks that it is beholden to society,
and because of this it tends to merely intensify extant social relations such as sexism. However, where Theberge and Taylor are more concerned with the gendered consumption practices of technophiles such as synthesiser enthusiasts and audiophiles, my research sheds light on the gender effects of the democratisation of technology discourse as it circulates in the production of popular music.

On the surface, the democratisation of technology discourse would seem to be at odds with another prominent discourse in sound engineering: that of masculine technical bravado and the accompanying assertion of feminine technical reticence. While appearing to be contradictory, the two discourses coexist harmoniously, and they often operate in tandem in ways disadvantageous to women sound engineers. As one of many discourses of sexual difference, the assumption of female technical reticence regulates sound engineering and helps to maintain it as a male domain: if women are naturally apprehensive of technology, then they will be reluctant to pursue sound engineering work. I found a number of women sound engineers who considered themselves technically confident and technically capable, as well as accomplished male engineers who confessed to technical reticence. Male sound engineers perform technical confidence and women sound engineers perform technical reticence, and in doing so they endorse and redeem the discourse, giving it further life. There is much at stake for women in failing to fear technology in the prescribed gender-appropriate manner: to take on and exhibit technical confidence, women sound engineers risk repudiating their femininity. Between the discourse of feminine technical reticence and the ideal worker norm that presupposes a male sound engineer with no external commitments, femininity and sound engineering are constructed as mutually exclusive and incompatible – one must give way to the other.
The discourse is manifestly not representative of all male and female sound engineers, which begs the question of why the discourse is so pervasive and persistent. Endorsed by women and men in the occupation regardless of their own feelings toward technology, the discourse becomes a self-fulfilling prophecy, despite evidence that runs counter to it. My challenge to the discourse of female technical reticence is a new finding for technofeminism and for feminist musicology, where the discourse is often endorsed as it is thought to be an objective insight about a very real feminine lack (see Turkle 1988; McCartney 1994; Brown 1995; Bayton 1989, 1998).

Curiously, the discourse of female technical reticence and male technical prowess does not seem to dislodge ideas about the democratisation of technology. Anyone can become a sound engineer, it is professed, there is nothing holding women back. Perhaps the underlying thread that links the two competing discourses together is an implication that women’s reluctance to enter sound engineering is a personal failing on their part: they have the option, but they do not capitalise on it because they fear technology. If the male-dominated nature of sound engineering is interpreted as women’s own responsibility, then sound engineering as an occupation can continue to be understood as gender egalitarian, and those women and men who make up its ranks can evade the difficult task of reconstructing it to make it a more gender-inclusive environment. I believe that this is how the two seemingly contradictory discourses can coexist, and how and why they are reconciled by sound engineers.

Women can and do become sound engineers despite their discursive construction as lacking in confidence and the construction of men as ideal for sound work. What this suggests is that another discourse evident in sound engineering – that the skills are acquired not through ‘natural aptitude’ but
through practical learning experience – is more consistent with the way my respondents represented their own experiences. It is also better situated to test the gender segregation of sound engineering work than to celebrate cyborg imagery. Although emphasis on female cyborgs acknowledges that women have and will continue to have a relationship with machines (Bradby 1993; McCartney 1994; Brown 1995; Porcello 1996; Gay 1998, Armstrong 2001; Dickinson 2004) cyborg imagery can readily be turned to sexist ends, for example when the musical female cyborg is represented as a passive machine-woman over whom men exercise technical mastery. Thus the feminist cyborg can only occasionally help us to conceptualise women as agents of technical work, but it can be undermined with ease. This leads us to the final observations generated from my research: what agency do women have as individuals and as part of a collective to overcome the barriers to their integration into sound engineering work?

Some of the requisite characteristics for ‘good’ sound engineering have traditionally been aligned with femininity, such as interpersonal skills and practical, embodied knowledge. However, at the live gig and in the recording studio, sound engineers co-opt these discourses and reverse them, or at best recast them as gender-neutral, while maintaining the masculine association with technical mastery and confidence. This is evidence of the logical inconsistencies inherent to the discursive production of sexual difference: in an ad hoc manner, skills are reclaimed according to whichever gender currently predominates in an occupation. The effect of this for women sound engineers is that they are further dissociated from the ideal of a sound engineer, and femininity and sound engineering are further rendered as mutually exclusive, incompatible.
Despite the patriarchal obstruction they face on their path to success as sound engineers, a number of women demonstrate through example that it is possible to infiltrate a male-dominated occupation, but they can only do so through the repudiation of femininity. Successful women sound engineers must be viewed as exceptional women in order to succeed. They report hav to exhibit superior ability to their male counterparts in order to be accepted as an able worker. They are typically required to establish themselves as ‘one of the boys’, downplaying any feminine attributes. They are better situated to conform to the ideal worker norm if they do not have children; successful sound engineering women would find it difficult to accommodate domestic responsibilities, predicated as their jobs are upon the assumption that the (male) sound engineer will have a female partner to attend to home and family. So while individual women sound engineers are able to resist their marginalisation by performing gender (Butler 1990, 1993) in unconventional ways, it usually comes at great personal cost to themselves, a cost that their male counterparts do not accrue.

This reiterates findings from other feminist musicologists that women have the albeit constrained agency to resist marginalisation from masculine norms in music. But, in contrast to feminist musicologists such as Andra McCartney (1994), I see no reason to challenge or discard imagery of power and control in music, because men do not have the monopoly over these concepts. If Foucault is correct in asserting that power is endemic to all social relationships, and I believe that he is, then women are just as capable of exercising it as men, even when constrained by what Foucault would characterise as the ‘congealed net of power relations’ that is musical patriarchy. Further to this, McCartney implies only one type of power: that of force, destruction and domination. But my respondents tell that they harness power as empowerment through the creative control with which sound
engineering know-how equips them. Power can be as seductive for women as for men: it is precisely the appeal of empowerment through creativity that attracts women to sound engineering and accounts for their agency and for their capacity to perform gender in untraditional, challenging ways.

Yet sound engineering continues to be almost exclusively male. The appeal of power as creative control is not potent enough to tempt women into sound engineering in numbers so great that its horizontally – and vertically – segregated status is transformed. This is because women’s resistance to patriarchy in musical production is for the most part the resistance of individuals. Role-modelling and cross-gender mentoring, where sound engineering men facilitate women’s path into the occupation, still happen only rarely. I contribute to feminist musicology the insight generated by Hannah Arendt that solidarity, enacted by a politicised non-essentialised collective, is necessary to prevail over any form of identity-marginalisation or subjugation. This is undeniably pertinent and applicable for the case of women sound engineers. Women sound engineers who form relationships of solidarity with each other and with sympathetic and supportive men in the business have a much stronger chance of defeating their marginalisation than they do as atomised individuals struggling against the tide. I believe that if, and only if, mutually beneficial connections are made with the goal of bringing gender integration to sound engineering and to popular music production more broadly, that this is an achievable aspiration.

The final point I wish to make concerns research methodology. There is some overlap between ethnomusicological branches of popular music methodology and feminist methodology, where both tend to be suspicious of objectivist research and where both tend to advocate mixed method research. But popular music methodology has on the whole neglected to adapt to the
epistemologies developed by feminist philosophers. My study is grounded in feminist epistemology, and because of this it is able to extend to popular music studies crucial insights for conducting gender studies of popular music. I show the importance not only of making one’s epistemology explicit but of putting it into practice in methodology; of integrating structuralist with post-structuralist approaches in order to generate analyses that have a materialist awareness of gender oppression coupled with a sensitivity to gender difference and diversity; and of not simply ’adding women in’ to existing research in popular music studies but of developing an approach that deconstructs both masculinity and femininity in popular music, questioning masculine norms and male neutrality.

There is work still to be done to theorise the field of sound engineering. Studies of sound engineering overwhelmingly concentrate on record production. It has become de rigueur to talk of the popular music recording as the authentic text, implying at once that live event production is not worthy of academic scrutiny and that it is less authentic than musical recording. My study has tended to blur the distinction between recording engineers and live sound engineers somewhat, due to New Zealand’s unique relations of music production which result in sound engineers working in both fields. It was also advantageous to examine live sound and recording, to cast my net wider for female respondents for the study. I believe that the similarities in gender relations in both arenas justify my slightly wider parameters. Unfortunately, however, through combining a study of live sound and recording engineering, some sensitivity to the differences between them is lost. Further research in this area would do well to focus solely on live event production, taking gender and other identity factors into account.
While I have tried to produce a study that is sensitive to the dynamics of ethnicity in popular music production, this is yet to be done effectively and comprehensively. There is value in deconstructing whiteness in sound engineering in Western societies, however, my New Zealand-based sample included few Maori sound engineers and is therefore inconclusive. Additional studies of sound engineering are recommended to focus primarily on ethnicity in order to meticulously account for the pervading whiteness of the occupation. A greater sample size of, for example, Maori sound engineers would greatly advance understanding of their marginalisation within the job and within popular music production more broadly. Nonetheless, it is not only Maori that are scarce in sound engineering, but other minority ethnic groups as well. A research method that generates insights into all manifestations of racism in sound engineering would make a considerable contribution to knowledge in this area, especially if such a study were responsive to the consequences of intersections between gender and ethnicity.

I believe that my study of gender and sound engineering for popular music production has contributed to feminist musicology, music technology and music industry studies, popular music studies, technofeminist theory, and feminist labour studies in various ways. I adopted an approach that combines structuralist and post-structuralist epistemologies and used it to analyse gender relations in a little-understood occupation with an undeniable influence over popular music production. My study generated insights about discourses of occupational choice and music technology with regard to gender, and offered a more comprehensive understanding of power than that offered in previous research. I have also provided a theoretically rigorous account of gender segregation in a male-dominated music occupation. New digital music technologies are interacting with an ever-changing music industry and the resulting alterations in the configurations of sound
engineering work are fascinating to inspect. Popular music studies continue to bring sound engineering under its analytic lens, fostering pertinent theories about the shifting terrain of gender, power, technology and the music industry.
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Appendix 1

20 September 2004

Gender, Power and Sound Engineering in New Zealand and Australia

INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

What is the Aim of the Project?

The aim of the project is to examine the roles of gender, power and technology in the sound engineering profession. This project is being undertaken for a PhD thesis in Music.

What Type of Participants are being sought?

Participants being sought are New Zealand and Australian sound engineers, sound engineering instructors and musicians of both genders, but women are of particular importance to this study.

What will Participants be Asked to Do?

Should you agree to take part in this project, you will be asked for an informal, in-depth interview. The interview will take a minimum of one hour and will be recorded on a cassette recorder. Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

Can Participants Change their Mind and Withdraw from the Project?

You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?

The interview questions will focus on personal experiences and attitudes towards sound engineering, training, sound engineers, musicians, feminism and music technology.
This project involves an open-questioning technique where the precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops. Consequently, although the University of Otago Human Ethics Committee is aware of the general areas to be explored in the interview, the Committee has not been able to review the precise questions to be used.

In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s) and also that you may withdraw from the project at any stage without any disadvantage to yourself of any kind.

The questions will enable the researcher to establish how gender, power and technology have affected the sound engineering profession. The information will be used in the researcher’s PhD thesis.

Only the researcher and the supervisors will have access to the information.

The results of the project may be published and will be available in the library but every attempt will be made to preserve my anonymity.

You are most welcome to request a copy of the results of the project should you wish.

The data collected will be securely stored in such a way that only those mentioned above will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by the University's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed.

**What if Participants have any Questions?**

If you have any questions about our project, either now or in the future, please feel free to contact either:-

Dianne Smith or Dr Sue Court

Department of Music

Department of Music

(03) 479 3079 (03) 479 8891

This project has been reviewed and approved by the University of Otago Human Ethics Committee
Appendix 2

Sound Engineering Questionnaire

Your background
How and why did you become a sound engineer?
How would you describe your overall experiences of training to become a sound engineer?
Have you done any recording engineering?
How long have you been a studio engineer for, and where have you worked?
If so, have you been in a position to have a say in production?
Have you engineered live sound?
How long have you been doing this for and where have you worked?
Have you ever worked for a sound company?
Have you ever worked in a recording studio?
Do you have your own studio? If so, how and when was the studio established?
(Home studios are okay for this question!)
Do you have your own sound company?
How would you describe your overall experiences of working as a sound engineer?

Training
Have you had formal training? If so, please state when, where and for how long, and the qualification received.
If you received formal training, do you remember how many students were in your class? How many of these students were women?
How did you get along with the tutors and your classmates?
Did you notice any differences in learning styles/approaches to technical learning between males and females in your classes? How would you characterize these differences? Did tutors emphasize and encourage any particular learning styles? Were all learning styles welcomed?
Did you ever notice any sexism during the period of formal training?
How much have you learned informally from other engineers?
Do you consider formal training in sound engineering to be a good basis for the job?
Please explain your views.
**The Qualities of Sound Engineers**

Have you taught anyone else how to engineer sound? What was/is the process?

What qualities do you think are important for a sound engineer to have?

How would you describe the relationship between the live sound engineer and the client?

How would you describe the relationship between the recording engineer and the client?

How would you describe the relationship between a recording engineer and a producer, when there is a producer in the studio?

Are you confident with technology?

Did you learn this confidence or does it seem natural?

What would a sound engineer do to establish trust between himself and the client?

Have you seen any tension occur between sound engineers and clients?

Is there ever a relationship of power between recording engineers and clients?

Are there any trade magazines you read? Which ones?

What do people say when they find out you are a sound engineer?

Do you have a signature sound? Can you describe it?

**Gender**

Why do you think there are so few women recording engineers?

Have you ever been treated differently for being a woman sound engineer? If so, please explain how you were treated differently. Did this differential treatment come from other sound engineers? Musicians? Producers? Punters? Other?

Do you believe there are any differences in the way men and women engineer sound?

If so, what would the differences be?
CENSUS OF POPULATION AND DWELLINGS CONFIDENTIALITY

NOTE: You should read this document before using the Statistics supplied in this file.

Section 37 of the Statistics Act 1975 requires that published statistical information be arranged in such a manner as to prevent any particulars from a respondent being identified by any person or undertaking (other than the person by whom those particulars were supplied). For the purpose of this section the Government Statistician is required to make such office rules as he thinks necessary.

Access to the individual population and dwelling questionnaires is limited strictly to personnel of the Statistics New Zealand who are concerned with the population census and who have made a secrecy declaration under Section 21 of the Act. Any staff member breaking this declaration commits an offence. No employee of Statistics New Zealand has ever had to be charged with divulging population census information.


Under the random rounding process, all table cell values including row and column totals, are rounded as follows:

- zero counts and counts which are already multiples of three are left unchanged;
- other counts are rounded to one of the nearest multiples of three.

All rounding, including separate rounding of total and sub-totals, is carried out on the recorded results. The probabilities of rounding up or down are set so that the long run expected value is the original count. The effect of this rounding on the accuracy of census statistics for practically any proposed use is insignificant. Furthermore, on occasion, figures or percentages have been rounded off to the nearest unit or decimal point. This may result in a total disagreeing slightly with the total of the individual items as shown in tables.