Submitted manuscript of:

Hopkins, Emma & Pauwke Berkers. 2019. Engineering a place for women: Gendered experiences of the music technology classroom. In: Sarah Raine & Catherine Strong (eds.).*Towards gender equality in the music industry: Education, practice and strategies for change.* New York: Bloomsbury, 45-58.

https://www.bloomsbury.com/uk/towards-gender-equality-in-the-music-industry-9781501345500/

Engineering a place for women: Gendered experiences of the music technology classroom

Emma Hopkins

Pauwke Berkers

Introduction

In an interview with *Rolling Stone,* singer-songwriter-producer Grimes (Claire Boucher) stated: 'I don't think there are few female producers because women aren't interested. It's difficult for women to get in. It's a pretty hostile environment' (Hiatt 2016). Data confirms that music producers are almost always male (Doubleday 2008). For example, the Music Producers' Guild in the UK reports that only four per cent of its members are women (Savage 2012). Moreover, the work of female producers largely goes unrecognized: only four women have received Brit nominations for best producer, none of whom won (Savage 2012). Previous research have explained this alignment between masculinity and technology as being the result of, amongst others: music socialization – gender stereotyping of instruments (Clawson 1999a) and instrument preferences of children (Wych 2012); gendering of genres (Baker, 2013; Bayton 1998; Gavanas & Reitsamer 2013) – both rock and electronic music are associated with

masculinity and technology (electric guitar, DJ equipment), whereas pop, which requires little to no technological skill (singing, acoustic music), is associated with femininity; gendered music talk among participants (Werner & Johansson 2016) and in the media (Davies 2001); and the absence of female role models (Berkers & Schaap 2018) and experts (Straw 1997).

Another possible – yet understudied – explanation for the lack of female producers might be women's near absence in specialized educational programs. UK data shows that music technology degrees are ninety per cent male to ten per cent female. Figures also demonstrate a decline in the numbers of women studying music technology from one educational level to the next (Born & Devine 2015: 146-147). Consequently, music technology education has the characteristics of a 'leaky pipeline', an analogy often used to describe similar drop-off rates observed in science, technology, engineering and mathematics subjects (Blickenstaff 2005). While STEM disciplines have witnessed a discernible improvement in gender representation, the 'leaky pipeline' analogy remains a rather fitting description for the relationship between gender and music technology education (Born & Devine 2015: 148).

Music technology is a vital cornerstone of the music industry, both practically and artistically. It is essential to the practical reproducibility of music and consequently, its evolution. In addition, music producers and sound engineers possess a significant amount of creative control over the artists who they work with and affect the sound of these artists. However, as in society at large, gender prejudice, discrimination and harassment remain prevalent in music industries and communities (Gadir 2016: 115). With this in mind, the marginalization of women in popular music has largely been attributed to their lack of control over male dominated, essential parts of the music

industry including the domains of production, management and journalism (Farrugia 2009: 337).

This research aims to shine a light on women's experiences within music education as future producers and engineers. It focuses on women as students pursuing a masculinized topic (music technology), in male-dominated spaces (music technology classrooms), that often feed into careers in a male-dominated field (music industry). Drawing on nine in-depth interviews, we ask the question: *how have these women experienced music technology education in relation to gender?* To answer this question, we have examined (1) *classroom experiences,* (2) *interactions with (male) classmates* and (3) *experiences with (male) teachers.*

By addressing this understudied topic, this chapter makes several contributions. First, few studies have explored the educational experiences of women within the technical areas of the music industry, particularly music production and sound engineering. Existing studies on music technology and gender have mainly focused on women as DJs or DJ/producers, particularly within the field of electronic music (see, for example, Farrugia 2012; Gavanas & Reitsamer 2013; Rodgers 2010). Second, previous research on music technology, gender and education has been largely centred on music technology as a sub-topic within the broader taught subject of Music, with school-aged students (Armstrong 2008; Armstrong 2011; Comber, Hargreaves & Colley 1993). Instead, this research concentrates on the post-compulsory tiers of education, more closely preceding music technology careers. Additionally, higher education classes place greater responsibility on individual student performance and are therefore subject to less supervision from teachers; this makes it possible to explore gender in the social context of the classroom, since behaviour and choices of language are subject to fewer constraints. This has gone unexplored by prior research, since,

generally, teachers heavily moderate class discussions and work in compulsory, school-level education. Examining varying levels of music technology education contributes further to understanding the apparent 'leaky pipeline' theory. Third, this chapter uses the personal and lived experiences of women studying music technology to explore the effects of structural issues in education.

Data and methods

The focus of our study is on the experiences of women studying music technology. We therefore opted for semi-structured interviews, as this type of interviewing allows respondents to elaborate where they please, make connections to the topics they feel are most relevant and to develop their own narrative (Gubrium & Holstein 2002). Our interviewees were selected on the basis of the following criteria: (1) people identifying as women, who (2) were in the process of completing, or who had completed post-compulsory education courses (diploma and bachelor degree) related to music technology, sound engineering and/or music production in the last ten years, (3) in Manchester (United Kingdom) or Berlin (Germany). Both cities have been centres of cultural and creative production as a result of deindustrialization, with Berlin now having arguably superseded the reputation of Manchester – despite the latter's enduring night-time and electronic music scene (Bader & Scharenberg 2010). Snowball-sampling techniques were used: contact was made with informants via Facebook based on referrals from individuals inside and outside our social networks. Relevant informants were then able to suggest respondents who had been studying at the below named institutions in Manchester and Berlin.

In total, nine interviews were conducted between April and June 2017. Respondents were between twenty-one and thirty-seven years old. The majority (seven)

had studied, or were studying, in Manchester at the School of Electronic Music, School of Sound Recording, Futureworks, or University of Salford; two respondents were in the process of completing studies at dBs Berlin. Three interviews were held face-to-face in casual café/bar settings in Manchester, while the remaining six were conducted via Skype. Interviews were recorded and transcribed verbatim using transcription software ExpressScribe. Interviews lasted between fifty and ninety minutes. All names mentioned in this chapter are aliases to warrant anonymity.

Interviews were structured in three main parts using an interview guide (available on request). First, we discussed their *classroom experiences*, encouraging respondents to talk about their feelings about being one of few women in the class. Second, we addressed their *interactions with male classmates* in terms of types of experiences and the effects such a male-dominated environment had on women, and vice versa. Third, we addressed questions relating to *teachers*, i.e. how respondents felt about having few female teachers, gendered experiences with teachers and whether and how teachers addressed gender imbalances. The data were analysed in Atlas.ti using thematic analysis as it has proved to be an effective method for reporting on the 'experiences, meanings and the reality of participants' (Braun & Clarke 2006: 80-81).

Classroom experiences

Being token in class: empirics and reasons

All respondents reported being either the only woman, or one of few women in class. As such, they are tokens i.e. members of the numerical minority (less than fifteen percent) in skewed groups (Berkers & Schaap 2018; Kanter 1977). The observations of our interviewees are consistent with estimates that music technology degrees are comprised of a majority of men (Born & Devine 2016). Moreover, while three

respondents mentioned that a number of their female peers dropped out, the majority of applicants were male to begin with, similar to previous studies (Born & Devine 2015: 146). Respondents highlighted two main reasons for this gender imbalance.

First, construction of music technology as a masculine profession discouraged women from enrolling in such programs. Our interviewees held media socialization, advertising and the schools themselves (including masculinized logos and online content as well as course materials lacking in visible women) responsible for this. They co-construct men as technologically able and on the flipside of this, women as technologically incompetent (Cockburn 1983; Wajcman 1991). Second, some interviewees expressed a belief that women lack awareness of (and interest in) the subject area, or that women are, generally speaking, innately more interested in the on-stage solicitation of attention, as opposed to the off-stage aspects of music-making. This latter notion – that 'men and women are innately and fundamentally different in interests and skills' – has been referred to as gender essentialism (England 2010: 150).

Feelings about being a token in the class

Feelings about being one of the few women in their classes tended to fall into predominantly two categories: (1) adaptation disguised as neutrality and (2) negativity. First, three respondents reported feelings of what initially sounded like neutrality, saying 'I don't mind it' (Anna) or 'I'm just not that fussed' (Alex). However, when interviewees expanded on these initial answers, they were less straightforward. For example, Sara said she became accustomed to being the only woman in the class, 'To be honest, after my college course, I was quite used to it because it was the same thing back in college.' Another respondent, Victoria, reported that she 'tried not to feel the difference' whereas Georgia stopped voicing aloud her worries about her capabilities

within the course in order to 'behave like them.' Perhaps this does not convey neutrality but rather an effort to accept the maleness of music technology. Other respondents who expressed 'neutral' feelings also highlighted their comfort and familiarity with men, as well as not identifying themselves as particularly feminine, perhaps as justifications for their alleged neutrality on the gender imbalance: 'I don't really care, doesn't bother me I'm the only girl. I don't like sitting here talking about makeup, straightening my hair for my Saturday night and the stilettos I haven't ever bought in my life' (Alex). Familiarity with men and presenting stereotypically masculine traits may enable for better adaptation to a male environment i.e. becoming an 'honorary male' (Dryburgh 1999; O'Shea 2008). Previous studies have, however, shown that 'women can become caught in a gender-oriented 'twilight zone' in which they do not truly belong to the female gender in the mainstream world as a result of a constant effort to tone down their femininity' in male-dominated spaces (Nordström & Herz 2013: 465).

Second, four respondents drew attention to negative feelings surrounding being one of few women in their class: they included feeling intimidated, self-conscious ('I was definitely very, very quiet, very self-conscious'), isolated, concerned about gender ('Do those guys think the question I asked is stupid?'), lonely and misunderstood. Respondents related these feelings to the behaviour of male classmates. For example, Olivia described the frustration felt when her male classmates seemed unwilling to empathize with her perspectives on gender in electronic music: 'I felt like I just got shot down by like everyone and I was just kind of like, "Damn." I do think that if there was another female, you know, maybe … they kind of would have been like, "Yeah, no actually I can see where you're coming from," but all these guys could not understand where I was coming from.' Similarly, Davina recognized the relationship between feeling uncomfortable and the behaviour of male classmates: 'I didn't feel too

comfortable and especially when sexist, misogynistic jokes were coming out.' We will address these feelings in more detail below.

Interactions with (male) classmates

Experiences with male classmates

First and foremost, almost all respondents had an overall good or satisfactory relationship with their predominantly male classmates, 'The atmosphere was great with the boys, relationship was brilliant. The class was tight knit' (Jessica). Further to this, two respondents went on to emphasize the collaborative nature of their courses, 'It was very collaborative, very supportive, very friendly' (Georgia). However, relationships were also gendered.

One of the most common observations made was that male classmates tended to display stereotypically masculine or boyish behaviours (West & Zimmerman 1987): 'It is very obvious when you are in the school like this that they are not used to, still not very used to women's presence … in the corridors they would still, for example, provoke each other by shouting things and sometimes even like playing, like wrestling … but it's usually in a funny, friendly way' (Georgia). This included reverting to 'guy talk', i.e. openly and frequently broaching topics that are stereotypically of male interest, including heterosexual male perspectives on women and sex. For example, Sara said: 'They're just very laddish with each other … just chatting about all the girls like, "She's hot" and talking about football, you know, things that I cannot join in. Just how they behave with each other … it's a different dynamic'. At times, guy talk descended into toxic masculinity (see Haider 2016): 'They were all quite misogynist, a lot of rape jokes and I had to go to the college at one point 'cause they were really intimidating. I'd be in the studio with thirteen boys all joking about raping a girl'

(Jessica). Such behaviours are perhaps reflective of the homosocial, collective nature of musical activity (Clawson, 1999b.) As a result, five respondents described feelings of social disconnection: 'Sometimes we [respondent and another female classmate] felt a bit detached from the group because the guys were on their guy talk and it was very difficult to actually have a conversation about something' (Victoria).

In addition, the gendered interactions between the female respondents and their male classmates are affected by perceived competitive hyper-intellectual 'nerd' attitudes. While working with computers seems at odd with quality characteristics (physical strength, aggression or authority) of traditional hegemonic masculinity, in some societal domains rhetoric has shifted from 'only the strong will survive' to 'the geeks will inherit the earth' (Royal 2014: 177). Suzanna described her male classmates as, 'If you imagine Big Bang Theory, that kind of guys?' who would 'alienate other people with terminology.' This eventually led her to the conclusion that 'they weren't interested in getting to know me even though I put quite a lot of effort in.' It has been theorized that this kind of technical one-upmanship and gratuitous use of technical language by male musicians and technicians is used as a power move to exclude women from technical spaces (Bayton 1997). Olivia expresseda similar sentiment when discussing her feeling that male classmates positioned themselves as experts:

> OLIVIA: I remember I didn't know what one thing was on the [mixing] desk … I asked him [a male classmate] and he goes, 'How do you not know that?' … There was a part of me that felt like, 'Aw okay, you just think I'm just some stupid girl,' or also cause they were older as well like, *[sarcastic tone]* 'Oh, I'm so much more experienced than you.'

These findings resonate previous research that has established a strong association between masculinity, technological skill and control (Cockburn & Ormrod 1993; Wajcman 2004). Consequently, the recording studio as a technological environment has been coded as a masculine space due to the prevailing connotation between

masculinity and the mastery of 'complex' technologies (Leonard 2007).

Male spaces and women's behaviour

Being a woman in a mostly male class (a token) had an impact on the behaviour of our respondents. First, they participated less in class discussions, became quieter, or meticulously planned what they would say before speaking aloud. This results in girls having to conform to 'malestream' processes and ways of thinking, or be silenced (Caputo 1994). Respondents were mostly worried that contributing to class discussion and being wrong would lead male classmates to criticize them harshly, or apply this judgement to their gender, i.e. being a 'stupid girl'.

> VICTORIA: Guys saying dumb things are just funny guys or are just jokey guys, oh how hilarious. But when girls say that kind of thing then it immediately becomes a fact that she's dumb, that she doesn't know what she's talking about, that she can't … being a woman in my class for instance, I know I have to be more careful with what I say and I have to be more sure that what I'm saying is right, because if I say something stupid or something that doesn't make sense, I know that I'm going to be judged heavily on that, opposed to how a guy would be judged for saying something equally stupid.

Moreover, those in a token position are more often judged according to their group category (women) as opposed to on individual competencies (Roth 2004; Schaap & Berkers 2014). Three respondents reported being subject to such gendered evaluations:

> SUZANNA: It definitely felt like there was a lot of comments that flew round, not from the lecturers, but from other students on the course about my skill levels, maybe? They've never seen any of my work, they've never heard any of my work, but just sort of assuming and making little remarks about it, [that it] might not be as good as the guys or that I might need extra help.

Secondly, as a result of being highly visible as tokens, women are often evaluated as an object of erotic or romantic interest: the fulfilment of the 'male gaze' (Mulvey 1975). Surprisingly, only two respondents had experienced this. In one of

these cases, male classmates suggested that the respondent was of romantic interest to the technical support staff and that she should use this to her advantage and theirs:

> ANNA: They [male classmates] asked me to be the one to go and ask the studio staff for the things because they said I was a girl and the studio staff, like, fancy me, so we're more likely to get good equipment … I went to go get the microphone out but they didn't have it in stock and so one of the studio staff gave me a microphone that only third year students should have access to, so he wasn't allowed to give me it, but he did … the guys were like, 'What? Like, he would never do that for us and he only did that because he fancies you.'

Not only does this example reflect the consequences of tokenism, it arguably feeds into discourses surrounding the role of women in music scenes as peripheral or the appendages of men (Cohen 1991: 206).

Female presence in male spaces

Interviews also addressed any perceived effect that female presence in a male space had on the behaviour of male classmates. For the most part, respondents did not report noticing their male classmates make any attempt to modify their behaviour in light of there being women in the class. Contrarily, three respondents suggested that their male classmates did alter their choices of words, language and conversation topics. Georgia further detailed this: 'Normally they would have manly banter about things … I guess they were a bit more considerate in terms of the language that they would use and even though I'm not worried about cussing and swearing … it's like, "Start behaving yourself, Georgia is standing there," but it was just usually as a joke.' Alex reported that her classmates initially adopted what she described as stereotypically feminine, caretaking (or arguably, paternalistic) behaviours towards her:

> ALEX: Some of them are dead femme so it's actually just like being with a bunch of girls … they're dead sensitive and dead nurturing. So like I would turn up on a Saturday and Ben would be like, 'Oh hiya babe, how's everything going? Y'alright? How was work? Oh I just brought you

> in a sandwich,' … I think they realized maybe half way through the course that they didn't really need to be so sensitive around me.

Thus, when male classmates were receptive to female presence, their actions – if any at all – were either not serious or essentialist.

Experiences with teachers

A predominantly male teaching staff

Respondents reported either being taught entirely, or predominantly, by men. In their initial interview answers, more than half of the respondents did not consider the lack of female teachers to be a problem per se. However, as they elaborated on their responses, positions differed. Three respondents (Alex, Anna and Victoria) echoed gender-blind ideas that the individual knowledge, experience and overall merit of the teacher are more important. Anna explained that 'It doesn't matter if they're a man or a woman, it just matters how good they are at the job.' Victoria expanded on this, acknowledging that while being taught by mostly male teachers is not problematic in itself, it is a reflection of the scarcity of women within the wider field of music technology. Yet, she alleges that women have to work harder to become successful (Kanter 1977): 'The teacher that I had here in Berlin, she's like a PhD, but that's the level of how good she had to be - and I had [male] teachers that don't even have a Master's degree, that don't even have a degree for that matter.' Second, Suzanna, Jessica and Anna highlighted the lack of role models for women in music technology, while a further four (Georgia, Suzanna, Davina and Jessica) expressed the belief that a greater number of female teachers would play a role in attracting more female students, or help to deconstruct the masculine image of the profession.

Teachers and gendered experiences

Gendered experiences involving teachers could be placed into three categories. First, most interviewees report indirect gender discrimination among teachers, i.e. teachers' own gendered preconceptions seep their way into interactions with and in assessments of students (Green 1997; Born & Devine 2015). Anna, Davina and Sara argued that teachers, on occasion, made statements suggesting that women were in fact better than male students in certain aspects of the course. On the surface, this may sound encouraging; however, explanations of the reasons why relied on stereotypical and essentialist notions of (emphasized) femininity or female physicality. For example, in an audio engineering class: 'The tutor said that women tend to make better foley artists, like making the sounds and like recreating the scenes than men do … he was like, well women just tend to like be lighter on their feet and have a closer eye for like, detail and attention' (Anna). While female bodies are thought to be advantageous in this area, Anna speculated that she was left out of a boom pole demonstration, due to her assumed lack of physical strength to hold the equipment. Similarly, a teacher praised an interviewee's efforts by making a connection between her femininity and emotional engagement with music. While working on a jazz track, her teacher said: 'You really thought about the emotion of the track … because you as a female, you focus on details a lot more than the guys' (Sara). Another way that teachers revealed such implicit gender biases was in providing extra support for – and being extra attentive to – female students. Davina considered the possible gendered dimension to this: 'I'd say they're extra supportive 'cause they're aware that that you're in the minority … If you're keen as well and you're dedicated, I'd say they're extra supportive most of the time, but even then that's a sort of special treatment assuming that you need it, isn't it?' These examples can be considered micro-aggressions: more subtle or covert forms of

discrimination towards oppressed groups, particularly occurring where more obvious forms of discrimination are unacceptable (Nadal 2013). The above example raised by Sara demonstrates assumptions of traditional gender roles, while the example raised by Davina is a micro-aggression in its implicit and covert assumption regarding the inferiority of female students and their abilities (Nadal 2013: 39; 43).

Second, more explicit cases include the school's dismissal of complaints made about classmates or teachers, for what they felt were misogynistic remarks. A interviewee described reporting her male classmates to a class lecturer for repeatedly making rape jokes, to which she was told, 'It's just boys, you've got to get over it' (Jessica). Davina described taking a complaint about a member of teaching staff to the head of the school only to be told, 'That's just the way the industry is.' Third, it is also important to note that five respondents suggested feeling that the teaching staff tried to relate to students in a gender-neutral manner, although three of those same five interviewees also provided examples of gendered experiences with teachers. Perhaps it is important to consider these gendered experiences within the wider context of respondent's overall experiences of their teachers, suggesting that gendered encounters and interactions were not necessarily everyday experiences.

Addressing the gender imbalance

Six respondents identified ways that teaching staff attempted to address the gender imbalance in class. First, the most common strategy was the inclusion of, or drawing of attention to, the contributions made by women to the field of music technology in classes and course content. Indeed, actively drawing attention to the work of women where it appeared in class was perhaps an attempt to make the contributions of women more visible: 'He'd [male teacher] look at female examples as well, so if he was talking

about a band he'd get another female band or one with a female singer or guitarist' (Jessica). Second, according to three respondents (Olivia, Jessica, Alex), teachers also addressed the gender imbalance directly and verbally: making the class aware of the vast gender imbalance in the wider industry, incorporating some acknowledgement of female students, or acknowledging gender inequality into opening dialogues. Olivia detailed:

> OLIVIA: I did feel like they [the teachers] were very aware of it [the gender imbalance] … I remember at the start of my degree one of the teachers was doing this big kinda speech to all the students … he said something along the lines of, 'Big respect to all the girls who are here to study because obviously there's not that many of them.'

Additionally, two respondents also reported being selected for class demonstrations over their male classmates; if a volunteer was required, a female classmate tended to be called upon. It was speculated that this was to encourage participation and to heighten feelings of comfort: 'It [the gender imbalance] was always like the elephant in the room, however sometimes in practical lessons … if we were being shown something new, teachers would pick on me to be the person that they demonstrated this thing with' (Suzanna).

Respondents interpreted efforts to address the gender imbalance as ways that teachers had tried to be more inclusive of women within the class. These attempts have to be seen in the light of the hidden curriculum, that is, schools transmit concealed lessons that are taught as a means of social control, involve teaching differently within the class, political socialization and covert training in compliance (Giroux & Purpel 1983). If the concealed lesson in music technology education is that it is a male discipline, perhaps teachers' efforts to address the gender imbalance were also attempts to disrupt the apparent hidden curriculum that excludes women from music technology class content (see Strong and Cannizzo in this volume for a further discussion of this).

Conclusion and discussion

This chapter investigated gendered experiences of music technology education, by addressing their (1) classroom experiences, (2) interactions with (male) classmates and (3) experiences with (male) teachers. First, being a token in a mostly-male classroom informs experiences of music technology education. Respondents' feelings on being one of few women in their class were generally negative and/or they felt they needed to adapt their behaviour to fit within a male-dominated environment. This reaffirms the masculine image of music technology, since even with women present, masculinity remains the norm. As a result, the masculinization of music technology as a profession continues.

Second, respondents generally reported having good or satisfactory relationships with their classmates. While this may be reflective of respondents' day-to-day experiences, these outcomes might result from selection of interviewees. Those who finished music technology training were able to adapt to a male-dominated environment – including its boyish and tech nerd posturing, occasional gendered evaluation, objectification of women and lack of accommodation of women. Others possibly dropped out. Future research might examine women who left the leaky pipeline.

Third, respondents were for the most part taught entirely by men. Most respondents drew attention to gendered interactions with teachers, mostly in terms of macroaggressions. Women's performance was linked to essentialist ideas of feminine quality characteristics, such as emotion and lack of physical strength. However, teachers appeared to make attempts to address the gender imbalance in class through a variety of strategies, such as the inclusion of female contributions and examples in class

content, addressing gender inequality in the music industry and picking female volunteers for demonstrations. Future research might further investigate the hidden curriculum by examining the content analysis of music tech school course materials and online content, in addition to classroom observation.

Additionally, the modern phenomenon of 'bedroom production' should not be underestimated as an alternative form of music technology education. Internet expansion and the development of user-friendly recording software opened the gates in terms of accessibility, but these informal educational pathways into music technology fall outside of the remit of this study. A small body of research addressing this topic is emerging (Barna 2017; Rodgers 2010); however, further research in this area should explore the use of online materials/self-teaching as a strategy for circumventing male dominated environments such as music technology schools.

All of this can be related back to the wider issue of the marginalization of women within popular music. The way by which music technology classrooms are constructed male spaces is connected to women students either self-excluding, or adapting to the masculine norms that are upheld. Understanding the gendered experiences of women studying at the educational levels preceding careers in music technology can therefore help us to make sense of the drop-out rates observed in women in music technology education - and consequently in the field of music technology. In another sense, perhaps this can go some way towards our understanding of where exactly the leaks in the 'leaky pipeline' occur and resultantly, where they can be fixed.

References

Armstrong, V. (2008), 'Hard bargaining on the hard drive: Gender bias in the music technology classroom', *Gender and Education,* 20 (4): 375-386.

Armstrong, V. (2011), *Technology and the gendering of music education*, Farnham: Ashgate.

Bader, I. & Scharenberg, A. (2010), 'The sound of Berlin: Subculture and the global music industry', *International Journal of Urban and Regional Research,* 34(1): 76-91.

Baker, S. (2013), 'Teenybop and the extraordinary particularities of mainstream practice', in S. Baker, A. Bennett & J. Taylor (eds.), *Redefining Mainstream Popular Music*, 14-24, New York: NY: Routledge.

Barna, E. (2017), 'A (translocal) music room of one's own. Female musicians within the Budapest lo-fi scene', in E. Barna & T. Tófalvy (eds), *Made in Hungary: Studies in popular music,* 59-70, New York, NY: Routledge.

Bayton, M. (1997), 'Women and the electric guitar', in S. Whiteley (eds.), *Sexing the groove: Popular music and gender*, 37-49, New York, NY: Routledge.

Bayton, M. (1998), *Frock rock: Women performing popular music,* Oxford: Oxford University Press.

Berkers, P. & Schaap, J. (2018), *Gender inequality in metal music production*, Bingley, UK: Emerald.

Blickenstaff, J.C. (2005), 'Women and science careers: leaky pipeline or gender filter?', *Gender and Education,* 17 (4): 369-386.

Born, G. & Devine, K. (2015), 'Music technology, gender, and class: Digitization, educational and social change in Britain', *Twentieth-Century Music,* 12 (02): 135-172.

Born, G. & Devine, K. (2016), 'Gender, creativity and education in digital musics and sound art', *Contemporary Music Review,* 35 (1): 1-20.

Braun, V. & Clarke, V. (2006), 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3: 77-101.

Caputo, V. (1994), 'Add technology and stir', *Quarterly Journal of Music Teaching and Learning,* 4 (4): 85-90.

Clawson, M. A. (1999a), 'When women play the bass: Instrument specialization and gender interpretation in alternative rock music', *Gender & Society,* 13 (2): 193-210.

Clawson, M. (1999b), 'Masculinity and skill acquisition in the adolescent rock band', *Popular Music,* 18 (1): 99-14.

Cockburn, C. (1983), *Brothers: Male dominance and technological change*, London: Pluto Press.

Cockburn, C. & Ormrod, S. (1993), *Gender and Technology in the Making*, London: Sage.

Cohen, S. (1991), *Rock culture in Liverpool: Popular music in the making,* Oxford: Oxford University Press.

Comber, C., Hargreaves, D.J. & Colley, A. (1993), 'Girls, boys and technology in music education', *British Journal of Music Education,* 10 (2): 123-134.

Davies, H. (2001), 'All rock and roll is homosocial: the representation of women in the British rock music press', *Popular music,* 20 (3): 301-319.

Doubleday, V. (2008), 'Sounds of power: An overview of musical instruments and gender', *Ethnomusicology Forum,* 17 (1): 3-39.

Dryburgh, H. (1999), 'Work hard, play hard: Women and professionalization in engineering—adapting to the culture', *Gender & Society,* 13 (5): 664-682.

England, P. (2010), 'The gender revolution: Uneven and stalled', *Gender & Society*, 24 (2): 149-166.

Farrugia, R. (2009), 'Building a women-centred DJ collective', *Feminist Media Studies,* 9 (3): 335-351.

Farrugia, R. (2012), *Beyond the dance floor: Female DJs, technology, and electronic dance music* culture, Chicago, IL: The University of Chicago Press.

Gadir, T. (2016), 'Resistance or reiteration? Rethinking gender in DJ cultures', *Contemporary Music Review,* 35 (1): 115-129.

Gavanas, A. & Reitsamer, R. (2013), 'DJ technologies, social networks and gendered trajectories in European DJ cultures', in B. A. Attias, A. Gavanas & H. C. Rietveld (eds), *DJ culture in the mix: power, technology and social change in electronic dance music*, 51-78, New York: NY: Bloomsbury.

Giroux, H. & Purpel, D. (1983), *The hidden curriculum and moral education: deception or discovery?*, Berkeley, CA: McCutchan.

Green, L. (1997), *Music, gender, education*, Cambridge: Cambridge University Press.

Gubrium, J. & Holstein, J. (2002), *Handbook of interview research: Context and method*, Thousand Oaks, CA: Sage.

Haider, S. (2016), 'The shooting in Orlando, terrorism or toxic masculinity (or both?)', *Men and Masculinities*, 19 (5): 555-565.

Hiatt, B. (2016), 'Grimes on 'Art Angels' Follow-Up, Why She Loves Tool', *Rolling Stone*, 12 April. Available online: https://www.rollingstone.com/music/features/grimes-on-art-angels-follow-up-why-she-loves-tool-20160412 (Accessed 4 April 2018).

Kanter, R.M. (1977), *Men and women of the corporation,* New York: Basic Books.

Leonard, M. (2007), *Gender in the music industry: Rock, discourse and girl power,* London: Routledge.

Mulvey, L. (1975), 'Visual pleasure and narrative cinema', *Screen* 16 (3): 6-18.

Nadal, K. (2013), *That's so gay! Microaggressions and the lesbian, gay, bisexual, and transgender community*. Washington, D.C.: American Psychological Association.

Nordström, S., & Herz, M. (2013), '"It's a matter of eating or being eaten": Gender positioning and difference making in the heavy metal subculture', *European Journal of Cultural Studies*, 16 (4): 453-467.

O'Shea, H. (2008), ''Good man, Mary!'Women musicians and the fraternity of Irish traditional music', *Journal of Gender Studies*, 17(1), 55-70.

Rodgers, T. (2010), *Pink noises: Women on electronic music and sound*, Durham, NC: Duke University Press.

Roth, L.M. (2004), 'The social psychology of tokenism: Status and homophily processes on Wall Street', *Sociological Perspectives*, 47 (2), 189-214.

Royal, C. (2014), 'Gender and technology', in A. Trier-Bieniek & P.Leavy (eds), *Gender & pop culture: Teaching gender*, 175-189. Rotterdam: SensePublishers.

Savage, M. (2012), 'Why are female record producers so rare?', *BBC News*, 29 August. Available online: http://www.bbc.com/news/entertainment-arts-19284058 (Accessed 23 January 2017).

Schaap, J. & Berkers, P. (2014), 'Grunting alone? Online gender inequality in extreme metal music', *Journal of the International Association for the Study of Popular Music*, 4 (1); 101-116.

Straw, W. (1997), 'Sizing up record collections', in S. Whiteley (eds), *Sexing the groove: Popular music and gender*, 3-16. London: Routledge.

Wajcman, J. (1991), *Feminism confronts technology*, Cambridge, UK: Polity Press.

Wajcman, J. (2004), *TechnoFeminism*, Cambridge, UK: Polity Press.

Werner, A., & Johansson, S. (2016), 'Experts, dads and technology: Gendered talk about online music', *International journal of cultural studies,* 19 (2): 177-192.

West, C., & Zimmerman, D. H. (1987), Doing gender. *Gender & Society*, 1 (2): 125-151.

Wych, G.M. (2012), 'Gender and instrument associations, stereotypes, and stratification: A literature review', *Update: Applications of Research in Music Education*, 30 (2): 22-31.