

Using electronic and digital technologies in music therapy: the implications of gender and age for therapists and the people with whom they work

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Introduction

This article is going to explore two important themes that have emerged in recent practice, theory and research relating to the use of digital and electronic music technologies in music therapy. Gender and age are of specific importance when introducing technology into both clinical settings involving music therapist and client, and training settings involving music therapy trainees and trainers. This chapter will explore each of these factors and the impact for music therapists and the people with whom they work in clinical settings, before making recommendations for music therapy practitioners and trainers. Given the limited published research and clinical description on this topic from music therapy literature, the discussion presented in this article draws from related fields such as music education and music production. It also considers the small body of research on music technology in music therapy practice. First, the relationship between age (or generation) and technology is examined drawing from informatics epistemology. Then, considering literature from informatics, music education and music production, I will examine gender /technology/music technology relations. Lastly, I explore all of this in the context of music therapy practice and education. As most of the inquiry to date is descriptive, qualitative or hypothetical, I have used a narrative style that compliments the existing style of inquiry and helps to illustrate some of the issues raised.

Background: gender and age as topics of importance in music therapy practice with technology

We are living in an interesting age where technology, and digital or electronic technologies primarily, have become a part of our 24-hour daily existence within a relatively short period of time over the very late 1990s until the present time. The race to keep up with the latest technology contributes to one's social identity, evidenced through preferential branding of devices such as Apple media over android media in phone, tablet and music listening devices indicate. The phenomenon of social networking using platforms such as Facebook, Twitter, Pinterest, LinkedIn, Instagram and blogging illustrate the power of this medium for one's social identity. Parallel to one's professional world, as therapists we are interested in how our clients can benefit from technologies that enable music engagement, production and performance, as well as those that expand social horizons.

As therapists, we need to keep up with these trends in order to best meet the needs of the people with whom we work, including staying informed through means such as information networking. There is a dilemma, however, for many professionals who may not be drawn to these technological tools. As positioned in the previous paragraph, staying up to date with the latest devices and technology platforms contributes to one's social identity. Inherent in this idea is that *not* staying current with developments can result in being excluded from particular social identities. This chapter is going to examine some of these issues with particular reference to gender and age. These two factors are relevant when considering the therapist, the client and also the professionals teaching trainee music therapists. Gender and age are only two of the factors that may contribute to one's comfort factor with technology. Other socio-cultural factors also contribute, such as race, economic wealth, technology infrastructures in geographical region (urban, rural, country), and familiarity from cultural perspectives. All of these are important to consider, although with little research on these topics it is difficult to make meaningful recommendations. Any one of these factors can influence one's inclination to use technological tools.

At this point, I would like to clarify that 'age' might be better considered as 'generation' in relation to the topic of technology. 'Generation' refers to a collective body of individuals born at around the same time who, within a particular culture, will be exposed to similar life experiences. At the time of writing this piece, the Internet and the ensuing technologies to use it are relatively new phenomena. As will be discussed later, this means that a certain *generation* may be disadvantaged when it comes to technology as its use in everyday life requires making conscious

decisions and changes to adopt it into everyday life. In ten years' time, the situation for people who are 40 years and above will be different. For this reason, this article will also refer to 'generation' as this is a more specific way of examining how professionals and the clients with we work might be excluded or disadvantaged.

Anecdotal conversations with peers and colleagues from diverse backgrounds about technology are weighted with references to gender differences. That is, men and women use technology differently. Examining theory that stems from the epistemology of informatics and education, it emerges that females "distance" themselves from technology, whilst males tend to "appropriate" technology (Kelan, 2007). This difference between genders is important for the music therapy profession for a number of reasons. First, we need to think about therapists working with clients: we work with female clients, and so we need to be aware of what it might mean to introduce technology into the therapeutic space from a gender perspective. Second, as a profession that has a greater number of female to male professionals, we need to think about how the therapeutic applications of music technology is being taught to trainee therapists, whether the professor is female or male, and given that the majority of students are likely to be female. Lastly, it is worth thinking about clinical supervision offered to both clinical trainees/interns as they learn to work in clinical settings, and also supervision offered to professional music therapists. We need to keep in mind how gender technology relations might be playing out in these different forums so that we can ensure the clients with whom we work are optimally enabled and empowered in music therapy.

Situating myself in this inquiry

Before I discuss why considering gender is a significant issue when technology is used in music therapy, I need to situate myself and explain my motivations. In doing so, I hope that this will provide some concrete illustrations to a topic that has received little interest in the research or clinical literature to date, and which has proven difficult to research (see Magee & Wimberly, 2013). As a feminist, my perspective of the world is one that understands women's voices as a minority. I am interested in exploring women's perspectives and understand that these are generally underrepresented in mainstream media, academia and world views generally. At the same time, I also understand topics and issues that are of interest to women may not be considered of interest or significance in mainstream thinking.

I also want to challenge the idea of gender being a binary concept of merely 'male/female'. Personally, I am deeply committed to challenging societal norms

around gender and strongly encourage all of my colleagues and students to do the same in their clinical and research practices. Best professional practice demands that music therapists be aware of the needs of people who have nonconforming gender identities, pertaining to both the clients with whom we work and the colleagues alongside whom we work (Whitehead-Pleaux et al., 2013). People with non-conforming gender identities may not identify as either female or male, or may identify with a gender other than their physical gender or their assigned sex at birth. These thoughts bear relevance when introducing technology into the therapy space, as we will see that males and females are socialized differently with technology. Thus, we should keep gender in mind when introducing these tools as the socialization of transgendered clients around technology is not likely to follow traditional norms.

Further to both these points, I have a particular perspective on this topic having been born in the 1960's, and thus of a generation that did not grow up with digital technologies or computers. As such, I feel disadvantaged every day as I am challenged by 'keeping up' with technology, learning about new platforms, updating apps on the latest devices to make my life (supposedly) easier or more manageable. This position is explored more in the section that follows, where I examine the notion of 'digital natives' versus 'digital immigrants'.

An examination of age and technology: Digital native; digital immigrant

As a child of the 1960's, I could be classed as what has been termed a 'digital immigrant'. This term has suggested to describe the generation who grew up before the digital age (Prensky, 2001). The opposite side of this is the generation who are described as 'digital natives'; that is, the generation who group up well-versed in the language of video games, computers, mobile phones and smart phones in particular, iPods and other MP3 players, and tablets with the encyclopedic 'apps' that accompany those. Previously, I have suggested that digital natives and immigrants might be classed by age, with a loose suggestion of those being born before 1970 being the immigrants (Knight et al., 2012). Although I position this discussion through the lens of age, it should also be kept in mind that this perspective is provided from a position of privilege, being that of people who live in developed countries rather than developing countries where socio-economic factors may be another barrier for accessing and mastering technologies.

Let me paint a picture of the digital immigrant's world. I remember when television remote controls became a part of most people's homes; but as my parents

were older, we did not have this technology in my family home as it was too technological for people of my parents' age. Because of this, I did not become familiar with using a remote control until at university. At the all-girls' school that I attended, the elective computer class (offered only in the final year) was poorly attended as it was not an attractive option. Instead, I chose to do typing, that was taught on manual typewriters. My assignments at university in the mid 1980's were typed on a (borrowed) manual typewriter. Although electric typewriters were a recent technology at that time, these were expensive luxuries for students and required learning new skills to use them. Many people just chose to hand write assignments. In my final year at university I had access to one of the early Macintosh desktops through a friend, and so I learned to do word processing. None of my peers had this luxury and although there were computer 'labs' available on campus, these were not heavily subscribed to by students in the arts. Music-listening involved vinyl LPs until the invention of the CD around the early 1980's which brought digital music into the home for the first time. Near to the same time, the first portable personal stereos (or "Walkmans") appeared on the market, and revolutionized the way of listening to music 'on the go'. When one wanted to phone a friend, the only option was using a landline either in the home, workplace or public telephones. I offer these examples to illustrate the devices and music formats that were usual in my youth, and as a contrast to a later generation who might identify with the following illustration of the 'digital native'.

Let's look now at the world of the digital native. Again, I examine this from the perspective of a wealthy society in a developed country. Born (loosely) after 1970, digital natives have grown up in the world of computers and mobile phones, and the idea of a home without a television remote control would be unheard of. Digital natives were in their 20s when the iPod was released, and in their 30s when the first iPad was released. They have grown up being versatile in a language where digital and electronic technologies are an accepted part of everyday parlance. Younger digital natives (i.e. those born after 1990) are likely to have grown up carrying their own mobile phone. Music consumed by those born in the 1980's has most probably always largely been digitized. Music is consumed, shared and composed in entirely different ways by digital immigrants, using digitized files that are commonly shared by downloading and uploading online. Software for amateur music composition (e.g. Garageband) is widely accessible on everyday devices (e.g. Mac laptops; iPads) so that digital music composition is readily available and enables even people with no music training (in the traditional sense) to create beats, loops and songs.

For the digital native, music is now so easy to access that there is a risk of being overloaded with music. Social media dominates how people of this generation relate to music, connecting to and sharing music through applications like Spotify, Grooveshark and Soundcloud. Favorite musical artists are followed on forums such as Facebook, Instagram and Twitter. The result can be an inundation with music, with as many as 10,000 songs on a computer and personal MP3 player.¹ Creating, sharing and accessing music in these ways are completely alien for the digital immigrant, who may not even consider embracing music using any of these means, and will still consider buying CDs as the norm. Many will not even have iTunes accounts. Despite some seeming advantages for the digital native's perspective, I have recently heard students born as recently as 1990 discuss "the kids these days are so technologically able....". It helped me to understand that possibly the identity of 'digital native/digital immigrant' was not quite as straightforward as one's age. That is, the passport for immigrant / native status might require other criteria that just one's birth date. However, largely we can see that digital natives conceptualize music making and listening entirely differently from digital immigrants.

I will explore the issues of age and technology later in this chapter. However, at this point, I want to highlight that age and generation are important factors to consider when we introduce technology into music therapy settings, whether this be the clinical session, the supervision session, or the music therapy classroom. The age of the therapist, the client, the professor, the supervisor, the supervisee and the student all need to be considered if the use of technology is intended to enhance authentic relations between any of these players and if technology is to be a tool that helps the therapeutic process rather than hinders it.

An examination of gender and technology

I have already discussed gender being broader than simply the binary category used more widely in society. Gender is also more complex than merely the sex we are assigned at birth. It has been proposed that gender is an "asymmetrical social relation", in which "the masculine is more highly valued and ascribed with more power than the feminine...(varying) over time and according to place and culture" (Stepulevage, 2001, p. 326). In this statement we can start to understand that gender is socially constructed, that notions of power may be implicated, and that the gender-power dynamic is influenced by cultural influences. At this point, I want

¹ I would like to acknowledge Lena Wendt BM MT-BC for her input from a digital native's perspective.

to return to non-conforming gender identities and clarify how I will consider this group in this chapter. Given the limited research about technology and people of non-conforming gender identifies, the previous research I have done on this topic grouped 'female' and 'transgendered' identities together as non-dominant gender minorities in the culture of technology (Magee & Wimberly, 2013). This seems appropriate, particularly given women's place as a non-dominant gender minority in the culture of technology. From this point on, where I discuss 'female' or 'women', I am using this as an umbrella term that encompasses non-conforming gender identities too.

This seems to be a point to begin to think about the power dynamic between male and female identities in the technological environment. Emergent in the literature from the disciplines of informatics and education is the idea that *men and women use technology differently*. As already stated, we might see that females may avoid using technology whereas males seize the opportunity (Kelan, 2007). This is important for music therapists to remember as it means *introducing technology can cause one to feel unequal on the grounds of one's gender*. Women downplay their technological competence (Henwood, 2000), a phenomenon that I (as a female digital immigrant) struggle with every day in my experience as a professor of music therapy trainees. However, it seems that downplaying one's competence is not just for women of my generation: recent research in music education settings also found that girl students underestimate their computing ability and express greater incompetence, less confidence and assurance in using computers than boy students (Armstrong, 2011). Gender also creates differences when technology is used in educational settings (Armstrong, 2008). This seems to be because the culture surrounding technology produces differing socialized expectations of males than females when it comes to behaviors and attitudes towards technology. Males are positioned as more 'expert' users than females (Armstrong, 2008). More worryingly, because of the higher expectations of males and the authority given to them when technology is introduced, males have greater influence in shaping the culture of the classroom when technology is introduced. Although this has been observed in music education settings, we might ask whether this also occurs in the therapeutic settings.

Gender and the relevance for the musical genres that incorporate technology

Technology can be a highly versatile tool for the music therapist working in community, health and educational contexts with clients across the life span, from neonates right through to the elderly (Magee, 2013). It enables therapists to

provide genres, idioms and instrumental sounds that can enable an individual to explore expressions of ethnicity or national identity (Magee & Burland, 2008a, b). Technology provides a platform for clients to access alternative identities, reinforcing age-appropriate cultural and social roles and challenging less-preferred identities (Burland & Magee, 2014).

The prevalence of hip-hop as a preferred genre for children, adolescents and young adults from any number of racial or cultural backgrounds can challenge music therapists using solely acoustic instruments (Sadnovik, 2013). In these situations, techniques such as looping, cutting and pasting, and multitracking require technological tools in order to create music and experiences that are authentic to the client's sociocultural identity. Whilst the use of hip-hop in music therapy is now widely practiced (Hadley & Yancey, 2012), it is also acknowledged that these musical genres may carry gender associations with considerable discussion around misogynistic and/or homophobic lyrics (Stadler, 2010; Vazquez, 2010; Veltre & Hadley, 2011). Also, literature from sociology and feminist theory paints the picture of male role models dominating the electronic music recording studio, playing the role of "producer", the ultimate controller in electronic musical creation (Faulkner, 2001; Stadler, 2010).

So, in music therapy situations where hip-hop is used and generated by technology, we need to stay mindful of several things. This musical genre may risk alienating females; the technological tools used to create this music may create an environment where females feel unequal or even disempowered; and the roles available for female clients might be more limited than those available to males due to the role models played out in society. This is not to suggest that all female clients will feel alienated, or that when working with females one should avoid using technology or hip-hop. However, the therapist should stay mindful of gender-based social practices, role models and expectations to ensure that the therapy session is an enabling rather than limiting environment. The therapist is responsible for ensuring that gender non-conforming and female clients are enabled to take a range of roles, including that of producer that might more traditionally be held by males.

The implications for gender and age when using technology in music therapy

The gender differences in technology environments have a number of implications for the music therapy clinical session and educational settings where music therapy is taught. An international survey into how music therapists are engaging with music technology in practice found that male music therapists are

significantly more likely to use technology than female or transgendered music therapists (Hahna et al., 2012). Furthermore, the results indicated that almost 60% of music therapists using music technology in 2010 (when the survey was undertaken) were between the ages of 21 and 40 (born 1970 – 1989). Music therapists born before 1950 were much more likely not to know how to use music technology in clinical practice and those aged born between 1950-60 were more likely to say that they “do not like music technology” or to view it as “not appropriate/relevant for music therapy clinical work in general” (Hahna et al., 2012). Although this research did not look specifically at the interaction between gender and age concerning music therapists’ use of technology, we already know from wider theoretical epistemologies that females are disadvantaged when it comes to technology from a sociocultural perspective. Given the results from Hahna et al.’s survey, it would seem that age combined with longevity in the professional field might further disadvantage female music therapists.

Theoretical perspectives explain some of the disparity between genders on the grounds of “reductionism” versus “determinism”. Reductionists argue that it is only *access* to technology that inhibits people from engaging with it; determinists argue that *socialization* plays a key role, particularly in terms of how comfortable individuals feel with technology (Magee & Wimberly, 2013). This argument is pertinent for music therapy. Research exploring the music therapy profession’s engagement with technology indicate that *access to technology* and *knowledge about how to use technology in therapy* are two of the main barriers for bringing technology into music therapy practice (Hahna et al., 2012; Magee, 2006). Let’s now consider this in combination with the demographic of the music therapy profession, being a profession with a majority of female practitioners, with many of the professors and trainers in the profession falling into the category of ‘digital immigrant’ who may be less informed about technology and less inclined to use it. Thinking about the argument already positioned concerning gender and generation, we can start to think about the profession’s *comfort* with using technology in the therapy clinical situation or the therapy classroom. Current discourses on both gender and age suggest that much of the profession may not be well placed to feel comfortable with using technological tools.

Let us now turn our thoughts to the people who are engaged in music therapy as clients. We have so far discussed digital immigrants in the profession of music therapy who, having been born before 1960, may be less inclined to use technology in their practice. What might this mean for using technology in music therapy with older clients? Is technology an inappropriate tool, given its lack of familiarity and usefulness for older people? It is of note that many of the previously published case

studies about using music technologies in music therapy have been with children, teens and young adults (see Magee et al., 2011 for an overview). However, several detailed case studies have illustrated the multiple uses of technology with this age group (Magee et al., 2011; Weissberger, 2013). In particular, recording technologies seem particularly pertinent for enabling the immediate capturing of spontaneous music making with others. Greater inquiry is required about the relevance of music technologies with older populations, however. Although a number of studies from related health disciplines are exploring the application of Wii technologies to meet functional goals with older people (Benveniste et al., 2011; Jung et al., 2009), reports indicate that standard technologies may not be optimal motivators and require considerable adaptation in order to engage elders meaningfully and meet clinical goals (Gerling & Masuch, 2011).

Age and/or gender may therefore contribute to how comfortable a therapist feels introducing music technologies into his or her practice, and how comfortable a client feels with engaging in therapeutic activity. Feeling comfortable with the methods and tools used in therapy is one aspect of being able to build a safe and trusting relationship that are essential for the client to feel empowered within their personal interactions. This has implications when technology is introduced into the therapeutic setting. Age and/or gender are factors that can contribute to feelings of skill, ability and mastery when it comes to technology. The therapist should always ask "What benefits can technology bring to the client within this interaction?" before introducing it into therapy, particularly when working with older clients. Certainly research has suggested that music therapists believe that music technology can empower people living with complex physical needs (Burland & Magee, 2014; Magee & Burland, 2008a & b) through contributing to the development of new skills, feelings of mastery and thus feelings of identity. In cases where acoustic instruments or receptive methods do not empower a client, technology may be another instrument to consider. However, careful thought should be given to ensure that the client is not left feeling disempowered with an unfamiliar device for the purposes of making musical sounds, which might be an entirely abstract concept for that client. Successful cases where technology has been used with elders have tended to use it for recording spontaneous music making with loved ones (Magee et al., 2011; Weissberger, 2013). This helps to keep the activity more concrete with a familiar outcome (i.e. a recording to keep for legacy).

Lastly, the therapist also needs to have feelings of skill and mastery with the instruments they use. Lack of comfort, familiarity and skill can all risk the therapist feeling disempowered. These concepts may contribute to therapists who are either from older generations, or female, or both, being less likely to use technology

in practice (Hanha et al., 2012). Feeling disempowered through the introduction of music technologies can provide a challenge when therapists are working with younger generations (e.g. digital natives). In such cases, therapists are encouraged to think about how the client may feel empowered by being the skilled one in the relationship. This may feel challenging for therapists, however, engaging with a client's preferred means of making music enhances the client's motivation and engagement in therapy at times of distress. In this way, engaging with technology can help to enhance a therapeutic relationship: it situates the client in a place where she or he can teach the therapist about the things that meaningful within the client's life.

Recommendations for music therapy training and practice when technology is involved

There are a number of recommendations for music therapy professionals if we are to ensure that introducing technology into either the therapy clinic or the therapy training setting is to enable and empower clients, therapists and students rather than place a barrier. Gender needs to be kept in mind given the gender demographic of the profession and, in turn, the demographic of music therapy trainers and supervisors. These recommendations are made to ensure that female music therapists feel confident in their abilities to use technology in therapeutic contexts, that female clients feel empowered when technology is introduced into therapy, and that female students do not feel deskilled when technology is brought into the classroom. I believe that music therapists are already aware of many of the issues around using technology with elders. However, there may be less awareness around matching technology to the needs of people who fall between being 'young adults' and 'elders', a group that we might consider 'digital immigrants', for whom technology use might be less familiar, less meaningful and be less comfortable.

It is worth considering training aspects first of all. Training for using music technology therapeutically has long been identified as a priority in the profession (Crowe & Rio, 2004; Hanha et al., 2012; Magee, 2006). However, little thought has been given before now about the gender demographic of the profession and how this might be influencing our teaching of using technology in therapy. Research from music education suggests that differing learning styles and teaching strategies might suit male and female students (Armstrong, 2011). When teaching the use of technology in therapy, female students may respond better to step-by-step guided learning rather than freer self-study (which may suit male students more). Also, emphasize the ways that music technology can enhance human relationships in the therapy setting, as female students may engage more with learning that stresses meaningful

social relationships (Armstrong, 2011; Hahna et al. 2012). Clinical case vignettes are a recommended means for illustrating the value of technology in practice.

In both training and clinical settings, technological jargon should be avoided as it may exclude people who are less comfortable with technology, who have less familiarity with technology, and who do not engage readily with the technology culture. This thought holds for both training and clinical contexts. Skill and expertise should not be based on either gender or generation. Younger people may be more familiar with technology, and thus more comfortable with using it. However, ensure that people from older generations also have the possibility to lead activities where technology is introduced as this will help with confidence and learning. This holds as well for gender. Be consciously aware of enabling all students/clients/participants to lead regardless of gender identity.

Be aware too of the role models that are prominent on the grounds of age and gender, and think about how this might affect clients in therapy and students in training. More prominent female role models are needed when technology is introduced for students, clients, and professionals alike. In particular, female therapists and trainers should remain aware of how they model the ways they interact with technology. Notice if you are presenting as the 'non-expert' as this can serve to undermine both the students you teach and the clients with whom you work.

In following these recommendations, strive to achieve an environment where music therapy educational and therapy settings enables people of all gender identities and age to feel free to explore, fail, learn, achieve and grow.

Conclusions

Music technologies can be a valuable resource for meeting the needs of people with complex needs and clients who are hard to reach using more traditional resources in music therapy. However, technology should never be used 'for technology's sake': when technology is used, it should always be matched to the client's specific needs and abilities. Two factors to consider when deciding whether to incorporate technology into practice that have not been thought about adequately until recently are those of gender and age. The age and/or gender of the therapist and/or the client can impact upon the 'comfort' factor for both client and therapist, as may other factors that have not been considered in this article such as ethnicity, cultural background and socio-economic wealth.

Music therapy has historically given voice to marginalized groups and isolated individuals. New and emerging technologies can help to honor this tradition as they can empower people with the most complex needs. However, music therapists using new technologies should remain aware that technology also has the potential to disempower some individuals. Ultimately, music technology should only be used when it empowers the client.

References

- Armstrong, V. (2008) Hard bargaining on the hard drive: gender bias in the music technology classroom. *Gender and Education*, no. 20 (4), 375–386
- Armstrong, V. (2011) *Technology and the Gendering of Music Education*. Surrey: Ashgate.
- Benveniste, S., Jouvelot, P., Pin, B. & Pequignot, R. (2011) The MINWii project: Renarcissization of patients suffering from Alzheimer’s disease through video game-based music therapy. *Entertainment Computing*, 3(4), 111–120
- Burland, K. & Magee, W.L. (2014) Developing identities using music technology in therapeutic settings. *Psychology of Music*, 42(2), 177–189
- Crowe, B. & Rio, R. (2004) Implications of technology in music therapy practice and research for music therapy education: A review of literature. *Journal of Music Therapy*, no. 41, 282–320
- Faulkner, W. (2001) The Technology Question in Feminism: A view from feminist technology studies. *Women’s Studies International Forum*, no. 24 (1), 79–95
- Gerling, K. & Masuch, M. (2011) When gaming is not suitable for everyone: Playtesting wii games with frail elderly. In *1st Workshop on Game Accessibility: Xtreme Interaction Design (GAXID’11)*.
- Hadley, S., Hahna, N., Miller, V. & Bonaventura, M. (2013) Setting the scene: An Overview of the Use of Music Technology in Practice. In Magee, W.L. (Ed.) *Music Technology in Therapeutic and Health Settings*. London: Jessica Kingsley Publishers, 25–43
- Hadley, S. & Yancy, G. (Eds.) (2011) *Therapeutic uses of rap and hip-hop*. New York, NY: Routledge.
- Hahna, N., Hadley, S., Miller, V. & Bonaventura, M. (2012) Music technology usage in music therapy: A survey of practice. *Arts in Psychotherapy*, no. 39, 456–464
- Henwood, F. (2000) From the woman question in technology to the technology question in feminism. *European Journal of Women’s Studies*, no.7(2), 209–227

- Jung, Y., Li, K. J., Janissa, N. S., Gladys, W. L. C. & Lee, K. M. (2009, December) Games for a better life: effects of playing Wii games on the well-being of seniors in a long-term care facility. In *Proceedings of the Sixth Australasian Conference on Interactive Entertainment*, ACM, p. 5
- Kelan, E.K. (2007) Tools and toys: Communicating gendered positions towards technology. *Information, Communication & Society*, no. 10(3), 358–383
- Magee, W.L. (Ed.) (2013) *Music Technology in Therapeutic and Health Settings*. London: Jessica Kingsley Publishers.
- Magee, W.L. (2006) Electronic technologies in clinical music therapy: a survey of practice and attitudes. *Technology and Disability*, no.18(3), 139–146
- Magee, W.L., Bertolami, M., Kubicek, L., LaJoie, M., Martino, L., Sankowski, A., Townsend, J., Whitehead-Pleaux, A. & Zigo, J. (2011) Using music technology in music therapy with populations across the life span in medical and educational programs. *Music and Medicine*, no. 3(3),146–153
- Magee, W.L. & Burland, K. (2008a) An exploratory study of the use of electronic music technologies in clinical music therapy. *Nordic Journal of Music Therapy*, no.17(2), 124–141
- Magee, W.L. & Burland, K. (2008b) Using electronic music technologies in clinical practice: opportunities, limitations and clinical indicators. *British Journal of Music Therapy*, no. 22(1), 3–15
- Magee, W.L. & Wimberly, D. (2013) Gender-technology relations in the training and practice of music technology in therapeutic settings. In W. L. Magee (Ed.) *Music Technology in Therapeutic and Health Settings*. London: Jessica Kingsley Publishers, 311–326
- Prensky, M. (2001) Digital natives, digital immigrants. *On the Horizon*, no. 9 (5), 1–6
- Sadnovik, N. (2013) The birth of a therapeutic recording studio: Addressing the needs of the hip-hop generation on an adult inpatient psychiatric unit. In W. L. Magee (Ed.) *Music Technology in Therapeutic and Health Settings*. London: Jessica Kingsley Publishers, 247–262
- Stadler, G. (2010) Breaking sound barriers. *Social Text 102*, no. 28(1), 1–11
- Stepulevage, L. (2001) Gender/technology relations: Complicating the gender binary. *Gender and Education* no. 13(3), 325–338
- Vazquez, A. (2010) Can you feel the beat? Freestyle’s Systems of Living, Loving, and Recording. *Social Text 102*, no. 28(1), 107–124
- Veltre, V.J. & Hadley, S. (2011) It’s Bigger Than Hip-Hop. A Hip-Hop Feminist Approach to Music Therapy with Adolescent Females. In Hadley, S. & Yancy, G. (Eds.) *Therapeutic uses of rap and hip-hop*. New York, NY: Routledge, 79–98

- Weisberger, A. (2013) Garageband as a digital co-facilitator: creating and capturing moments with adults and elderly people with chronic health conditions. In Magee, W.L. (Ed.) *Music Technology in Therapeutic and Health Settings*. London: Jessica Kingsley Publishers, 279–293
- Whitehead-Pleaux, A., Donnenwerth, A., Forinash, M., Hardy, S., Oswanski, L., Robinson, B., Anderson, N., Hearn, M. & York, E. (2013) Best practices in music therapy: LGBTQ. *Music Therapy Perspectives*, 30 (2), 158–166