

# WOMEN INNOVATORS: TECHNOLOGY-BASED MUSIC THERAPY

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## ABSTRACT

Women in music technology have made many advances both in representation and in becoming innovators in a male-dominated field. In contrast, women dominate music therapy, and yet there is very little integration or documentation of the use of music technology in this field. This paper examines some of the issues facing women in music therapy when they utilize music technology and how this intersects and resonates with historical issues of gender and technology.

## 1. INTRODUCTION

Women in music technology have made many advances both in representation and in becoming innovators in a male-dominated field. “It was not until the late 20<sup>th</sup> century that women in the United States were able to establish themselves as important developers and innovators in music technology” [3] Nevertheless, women continue to be underrepresented in audio engineering and music technology. In contrast, women dominate music therapy, and yet there is very little integration or documentation of the use of music technology in this field. With women becoming innovators in music technology, why is there an enduring lack of technology in music therapy? Where is the technological training in music therapy coursework? This paper addresses these questions by examining some of the issues facing women in music therapy when they utilize music technology and how these issues intersect and resonate with the historical issues of gender and technology. This paper also examines how recent innovative projects for the special needs population, such as the work of Pauline Oliveros’ Adaptive Use Instruments and Adele Drake’s Drake Music Project, challenge and question contemporary practices in music therapy.

## 2. FINDINGS

The study of women in technology has been researched since the beginning of the feminist revolution. Though women have made progress, they still lack in numbers in

technological careers and degree programs. This underrepresentation persists in part because as children, girls are less likely to be interested in gaming and are not as encouraged by parents and teachers to go into technological careers. Girls are often less interested in developing computer skills because it is considered a more masculine territory and girls have limited access to technologies in comparison to boys. [7] Women also have less affirmative experiences within the technology field. The lack of female role models and the male-dominated learning environment reinforce gender inequity. As a result of gender stereotypes, some women are scared of technology or believe that it is difficult to understand or use. In contrast, music therapy has predominately female practitioners, occupying over eighty percent of the practitioners with very little integration of technology in clinical practice. Before examining technology in music therapy, it is necessary to first examine basic tenets of music therapy.

According to *The Handbook of Music Therapy*, music therapy “utilizes sound and music within an evolving relationship between client/patient and therapist to support and develop physical, mental, social and spiritual well-being.” [2] Training in music therapy is designed for someone interested in music education but also in the health care field to put his or her talents to good use. Music therapy has existed since the early 1900s with the first journal of music therapy. During World War II, groups of musicians performed in war hospitals for injured soldiers. [3] Through these interactions, the healing potential of music was realized. Since then, music therapy has evolved with the development of specialized undergraduate programs throughout the world for music therapy. There are fewer graduate-level programs and only a handful of post-graduate programs. Music therapy research has steadily improved the quality of life for patients with widely different issues.

How exactly sound is utilized in music therapy remains unspecified, as does the relationship between sound and conventional ideas of music. Technology can enable new, creative intersections between therapy, music, and sound. Technology redefines sound creation, allowing one who is unable to access acoustic instruments to produce sound and perform musically. One is able to

create his or her own sounds and also use recorded sounds in a piece to express thoughts or feelings through unique gestures and ways of controlling and producing sound.

Regardless of the rapid growth of music therapy, the use of technology in music therapy remains underdeveloped. Music therapists base their therapy sessions on conventional interaction through acoustic instruments and singing that dates from its post-war origin. The music therapy certification focuses on the use of acoustic instruments such as voice, guitar, piano and percussion in groups or individual settings. In a typical session, the therapist usually plays the guitar or piano, and the patient usually beats on a drum or other percussion instrument to keep the beat. Patients that are unable to hold the percussion instrument often have them strapped to their arms or hands. If the patient is unable to move, the therapist or an assistant helps them play the instrument with hand-over-hand gestures. This use of instruments has worked well for music therapists, but one does not know how someone who is unable to convey their feelings receives this physical use of instruments. The use of technology can take away the need to strap instruments to patients and the need for musical structures that may not be understood by patients.

The potential for integrating electronic instruments, for example, in music therapy remains underdeveloped in part because of the emphasis on acoustic instruments within music therapy. However, the lack of exploration of the potential of electronic instruments can be accounted for as the result of how instruments and technology are genderized. A New Foundland study (2006) of gendering in music technology states, "Encouragement for women to play acoustic rather than electric instruments perpetuated the tendency to downplay women's technical prowess by associating them with older 'traditional' instruments." [4] Thus, as a result of this genderizing of technology, women are less likely to explore the potential of electronic instruments. Having more technology training in music therapy education and certification would help this barrier between electronic instruments and women practitioners.

The use of technology starts with education. Bhatnagerm, Brake and Bellamy (2007) state, "The educational system has a significant influence on technology perception of young people as well as their decision to choose or reject technology careers." [1] There is very little training for a music therapist in technology in and out of college. There are limited workshops in the United States that deal with technology in music therapy. A survey conducted by Magee in London in 2006 discovered that 69% of the music therapists that responded stated they never used technology." [5] Elaine Streeter (2007) discusses how music therapists usually argue that they must be free to interact with patients and their wariness of safety issues concerning electrical cords in therapy spaces. [11] These are some of the challenges the

music therapy community has when using technology. These fears can be alleviated when provided with appropriate technologies and training. For example, wireless technologies can be employed as a means of addressing concerns related to having electrical cords in a given space.

Examining the different music therapy programs offered in the United States on the American Music Therapy Website, one frequently finds only one music technology course dealing with MIDI (Music Instrument Digital Interface) offered in the curriculum.<sup>1</sup> Indiana University Music Therapy Program has an uncommonly large amount of technology within their curriculum. [8] The relatively large amount of technology courses specifically for students becoming certified music therapists at Indiana University reveals that it is possible to successfully integrate technology into the music therapy certification curriculum. This makes the lack of technology in other music therapy curriculums particularly puzzling. During personal correspondence with researchers for the American Music Therapy Association, I was told that if one was to use technology it was developed through personal interest and not college coursework. Thus, it seems that a music therapy program that seeks to incorporate music technology into its curriculum must have someone who will personally advocate for its integration.

Another issue related to the consistent lack of technology in music therapy is the dearth of documentation on its use in different academic programs and the field at large. There is very little documentation on the technology taught in the coursework of a music therapist. A search for textbooks on music therapy and technology or MIDI has proven unfruitful. It seems hard to build upon the technology already in use if not documented. In other music or medical fields, new uses for technology are emphasized and documented even if the technology in question is in development. Music therapy, on the other hand, does not document the use of the technology being used. This deters conversation between music therapy practitioners using technology and prevents those who want to learn about it from finding relevant information.

Considering there are more women practitioners of music therapy than men and that women are less likely to create new technologies, this barrier between the fields of music therapy and technology persists. In Kip Pegley's study "Like Horses to Water," (2006) girls preferred working with acoustic instruments and also preferred to be involved with the more creative, hands-on aspect of these instruments. [7] However, technology does not have to be abstract. One can be creative and also hands-on while using technology. Technology assists to make the interaction more meaningful for a person who might not

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<sup>1</sup> Author accessed:  
<http://www.musictherapy.org/handbook/schools.html>

otherwise be able to interact completely. As Magee (2006) states "It is a clinical intervention which works towards enabling individuals to express themselves and interact on a non-verbal level with others, regardless of physical, sensory, communication or behavioral difficulties." [5]

There is a demonstrated need for music therapy, but its place within therapy, music, academic, and research institutions is perpetually changing. Music can be a motivational tool and if the technology employed in music therapy can be flexible, then it could easily be adaptable to individual needs and modes of expression. In this sense, music therapy would need to become more interdisciplinary. Music therapy and technology can intertwine in such a way that a combined approach can be used to motivate patients to do the work they need to fulfill IEP (Individualized Education Program) goals from moving their own wheel chair to pushing buttons and packing objects. Music technology could also be used to motivate patients within their physical and occupational therapy. Incorporating technology with music therapy will give the patients an opportunity to create and express themselves and help with the psychological process as well as motivation to help them acquire skills necessary for a more independent living situation or quality of life.

Unfortunately, an additional barrier to working with music technology is cost. Magee's survey (2006) states that seventy nine percent of music therapist surveyed stated they do not have access to music technology and forty percent agree that music technology is expensive. [5] The latest innovations can be costly but modifying and adapting a more widely available consumer-oriented interface can cut costs. One can also use open source software and customize it to fit the individual needs of each patient. The use of technology in music therapy does not necessarily require working with the newest gadgets. Using what the patient might already use within their daily activities, for instance switches and talking devices can be frugal and intuitive for the patient. The more innovative music therapy is in technology, the more likely people will take an active part in the development of new innovative practices. This is also true if music therapy was to be more interdisciplinary. The technology used in music therapy can also be used in other therapies, which has the potential to make the technology cost effective.

There are groups that have been innovators in helping people with disabilities become musicians. The Drake Music Project has been helping people with disabilities live their dreams as musicians and composers with the use of technology.

Drake Music is based in the UK and has different facilities in Ireland and Scotland. The Drake Music Project offers support for people with disabilities in creating music and also for professionals who work with the disabled community. The Drake Music Project also develops technologies such as the MIDIPad or E-Scape. With these technologies, one can create their own music and play in

an ensemble setting with non-disabled musicians. One does not need to have much mobility to use these musical devices and interfaces.

Pauline Oliveros' work with the Adaptive Use Instruments provides another innovative way to help people with disabilities become musicians. This program uses Max/MSP and Jitter to track the movements of the individual to control different instrumental sounds. One can control drum sounds by moving their head. The position of their nose is tracked from one box to another on the screen to control what type of percussion instrument is played. This same technology of motion tracking is also used for keyboard sounds. One valuable aspect of this program is its adaptability. For example, it can be changed per participant to fit his or her range of movement. Oliveros states that "It is quite easy to see how affected they [people using the software] are with their musical results. There are holistic and therapeutic side effects as well. We want to increase their possibilities for choice with improvisation as an empowerment for them." [6]

It is significant to note that the Drake Music Project and the Pauline Oliveros Adaptive Use Instruments were created outside the realms of music therapy. However, there could be a use of this technology in music therapy practice. By combining these two resources there would be the possibility of forming a middle ground between acoustic music therapy and using music technology as a creative means for people with disabilities.

One way to increase the use of new, creative technologies in music therapy is to provide more education and training in technology. Magee's survey (2006) found that only fourteen percent of music therapists surveyed believed that technology was inappropriate for their patients. Only four percent thought that technology was not pertinent in music therapy. [5] A majority of music therapists agree that technology could be useful, but do not have the access or education to use technology in his or her clinical practice. An example of this is from a study done with music educators, whose field is closely related to music therapy, which studied the effects of a one-week extensive workshop on technology and if this workshop would increase the use of technology for instruction. The research showed that the teachers were more confident with technology but in the long term the use of technology diminished. The conclusion was that there needed to be more support and resources for long-term use. [9] Extensive workshops on a particular technology used in music therapy, a certificate offered by AMTA (American Music Therapy Association) to those that have been through technological training could be offered as a way of encouraging the incorporation of music technology. More classes in technology need to be offered in the undergraduate through the post-graduate level. This would likely produce a greater documentation and discourse of the technologies being developed for music therapists and patients.

This paper is not suggesting that music therapy should only use technology but a combination of technology and acoustic music that works best for each individual patient. Music therapists can be further empowered to address the specific needs of each patient when they have all the information and advantages to help them. Understanding the basics of music technology and how to use it in a therapy session can facilitate new, powerful interactions between the patient and the therapist.

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