

# Music Therapy Methods With Hand-Held Music Devices in Contemporary Clinical Practice: A Commentary

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## Abstract

This commentary addresses the inclusion of a new class of digital hand-held music devices in clinical music therapy work. The discussion includes the conditions required to create productive, therapeutic methods with hand-held music devices in contemporary medical practice. Recommended solutions include the creation and development of applications that allow for rhythmic organization with autocorrection, memory enhancement and revitalization, vocal empowerment, mobility with fluidity that provide data sets that are diagnostic, prescriptive, interactive, and demonstrate patient progress toward specific goal attainment. The recommended methods should also incorporate the vocabulary, structure, and architecture of digital hand-held music devices into a system of clinical methods that are derived from best practices and clinical trials. The proposed methods include the use of open source, materials to move the discussion forward toward the creation of standardized clinical interventions using digital handheld music-making devices.

## Keywords

music therapy, music medicine, procedural music therapy, creative arts therapy

## Introduction

An elderly patient was sitting alone in her room. I stopped in to visit and asked, “Would you like to join us and share music?” She patted her MP3 player and replied with confidence. “No, thank you. I have my music right here with me.” Sophia had a personal MP3 player at her bedside. It gave her comfort and confidence. It gave me pause.

Was this person content in her solitude? She had previously enjoyed creating music with me. She participated in both individual and group music-making sessions. Lately, however, her MP3 player had become a constant, and it dominated her waking hours. Did she not want interaction with the others or was there another dimension to this dynamic? In this era of social media, connectivity, and interactive devices has human interaction become less important? Have we diminished our need for interaction and has our shared music caused us to become less social?

In the last decade, we have witnessed music’s sudden transition from physical objects (LP records, cassettes, CDs and DVDs) to existence as an ephemeral entity of digital “ether.” Music is now listened to and shared with ease via digital music files in a variety of formats on hand-held music devices. With the adoption of cellular networks and Wi-Fi Internet signals, music is now virtually everywhere. Yet, the objects we use to create, listen to, and archive music are now increasingly reduced in their physicality almost, at times, to the point of a virtual existence.

As Negroponte predicted a generation ago, we are now digital.<sup>1</sup> In discussing the import of Wikipedia as a chronicler of this digital life, Heffernan writes:

Wikipedia is vitally important to the culture. Digital artifacts like video games are our answer to the album covers and romance novels, the saxophone solos and cigarette cases, that previously defined culture. Today an “object” that gives meaning might be an e-book. An MP3. A Flash animation. An HTML5 animation. A video, an e-mail, a text message, a blog. A Tumblr blog. A Foursquare badge. Around these artifacts we now form our identities.<sup>2</sup>

This trend began over 30 years ago with a cassette playing device from Sony called the Walkman.<sup>3</sup> From this humble beginning, hand-held music devices have now evolved into a cultural sea change of interactive devices that can allow users to customize their sonic environments. For many people, digital hand-held music devices are now a part of daily life. We walk with, we talk with, we play with, we even interact with one another using these devices. It is now common to see

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people wearing ear buds and/or headphones in the most unusual of places. Digital hand-held music devices that can store comprehensive collections of music, data, and music-making applications are now seemingly omnipresent. Some examples of these devices include the iPod, iPad, and Zune, along with many other related devices. We may have reached a tipping point in our culture in which musical activities are no longer conducted for a reason or purpose but now, a part of our social fabric.

In my observations of clinical practice, both here in the United States and in Europe, I have found that music therapists have a troubled history of embracing music technology. Yet, I have recently observed digital hand-held music devices in clinical practice with both entry level and senior therapists alike. There are several comprehensive historical perspectives and reviews documenting the inclusion of music technology in the music therapy process.<sup>4,5</sup> There are also clinical surveys documenting the use of music technology in the music therapy process with accuracy.<sup>4,6</sup> Yet, none of these efforts anticipate the convergence of this class of digital hand-held music devices as a technologic instrument that has altered the practice of music therapy in a profound manner.

While not at a singularity of technology,<sup>7</sup> we are indeed approaching a new class of devices that offer rich passive music listening experiences, predictive music selection, and active music making, all without the need for assistance or therapeutic intervention.<sup>8,9</sup> This new class of digital hand-held music devices are small multitasking musical companions. These devices are capable of accessing and storing large libraries of music, creating complex musical ideas with little to no technical training. These devices are also capable of effortlessly sharing these musical creations on social networks.

The music recording and distribution industries have been reworked by this new class of digital hand-held music devices.<sup>8</sup> Has music therapy evolved with this change? There is a seismic technological shift underway that impacts both the practice and need for music therapy. The question is then: As this class of digital hand-held music devices impacts medical practice, what is required to create productive, therapeutic methods with digital hand-held music devices in contemporary clinical practice?

## State of the Arts

While this shift does represent a radical reordering of things, does it constitute a true paradigm shift in the Kuhnian sense?<sup>10</sup> Here, the answer is less clear. While there is a revolution in the manner in which music is distributed, consumed, and shared, there is little new or radical in the music itself. Most popular music remains tonal, predictably rhythmic in common time with a limited range of tempi. If anything, we are at best in a “pre-paradigm” period. That is, we are at the cusp of new definitions of our musical works with new thought and perceptions. It is within these new ideas the question arises as to the impact on the process of music as applied to the help and healing of others.

This is troubling. If music technology has a presence in contemporary clinical practice,<sup>6</sup> then why are there no documented music therapy methods for these digital hand-held music devices? Are we now witnessing the evolution of a technology as a therapeutic instrument? If yes, then therapeutic solutions need to be derived from practice. As clinicians strive for transparency in their attempts to provide therapeutic and meaningful musical experiences, we must also strive to include best practices and methods. It would be too easy to be seduced by the siren song of these technologies and forgo the necessary work in creating a comprehensive, replicable order of clinical interventions.

Clinical interventions with these hand-held music-making devices can include both analog and digital technologies. These devices allow clinicians and patients to interact with computer and networking protocols. Sound generating devices can now be recorded, edited, manipulated, and sequenced using a host of interactive software and hardware. Alternate music-making devices allow users to create sound with keystrokes, clicks, motions, and gestures. The human voice can now be altered, recorded, and manipulated in unique ways. Applications of granular synthesis allows for the manipulation of any recorded sound to meet the moment of the music.

However, the use of these digital hand-held musical instruments and related tools has led to an experience of cognitive dissonance.<sup>11</sup> Consider the following questions: “I wish to make music as an expression of the human condition with another in a therapeutic encounter but I need to diminish human involvement.” Also consider: “The devices I have chosen distance me from the process but are the best choice for the human frailties that I am attempting to address.” Additionally, therapists now require a new lexicon to interact with people intentionally isolating themselves through a digital hand-held music device. A new level of understanding is now required by clinicians to begin the processing of unraveling these complex issues. Whether digital hand-held music devices will create a panacea or a virtual Pandora’s box is unclear. What is clear is that the process of integrating these devices into clinical practice is formidable.

## Incommensurability and Current Clinical Practice?

So are we then at an incommensurable impasse? Is the contemporary practice of music therapy with traditional instruments and methods commensurate with this new order of not only music making but also music in society? Current clinical music therapy practice involves both passive and active music-related activities. Generally, music therapists engage in music-related activities through the active creation of music, the active process of listening to music, and/or the passive listening in a therapeutic setting. These methods and practices use traditional instruments meant for performance, or with modification, such as Orff/Schulwerk<sup>12</sup> therapy. The current iteration of digital hand-held music devices are not intended for either performance or therapy. Still, they are fungible in purpose with the

traditional instruments of therapy. This new class of digital hand-held music devices and instruments may indeed form the commensurable methodology that will create productive, therapeutic methods in contemporary clinical practice.

## Digital Hand-Held Music Devices in Clinical Work

Observations of people using digital hand-held music devices would seem to indicate that these devices have enjoyed an overwhelmingly positive acceptance in mainstream use. The positive attributes of hand-held music devices include: portability, scalability, functionality, and depth of range and purpose. The negative attributes of hand-held music devices include: expense, initial learning curve(s), fear of new devices, volatility of immature technology (constant upgrades, quick obsolescence), and intergenerational issues and attitudes toward emerging technology. Given the relatively brief period that these devices have existed, there are no data available as to whether the benefits outweigh the inherent deficits of this technology. However, this class of instruments may very well have potential for the creation of new methods of clinical work. Consider that there are activities that can be part of integrative practice of traditional and digital hand-held music technologies. There are data from the Music Technology in Therapeutic and Health Settings project findings demonstrating that intergenerational factors (ie, the age of the therapists and the patients/clients) are not a barrier. This data show music technology to be viable across the life span.<sup>13</sup>

All forms of music therapy can involve movement/dancing, singing, songwriting, and recording, playing virtual instruments, along with passive and active listening. The inclusion of digital hand-held music technology can provide both new means of expression and clinical data that are not available in traditional instruments. For example, many digital hand-held music devices have programmable accelerometers that can be used for both unique musical experiences while creating important clinical data. These devices have voice input algorithms that can be used to improve oxygen saturation, stabilize heart, and respiration rates. Additionally, these devices have music applications that can be used to reduce the need for pain medication, to reduce stress after pain, and increase tolerance for stimulation. And finally, digital hand-held music devices have the ability to use patient musical creations for social networking to reduce isolation and withdrawal during treatment and hospitalization.

Digital hand-held, music-making devices offer new opportunities for people to relate and interact through music making without prior music making experience. These devices have "routines" that generate algorithms (sequences) of music in real-time. Methods utilizing digital hand-held music devices are possible once the conditions of user interface and standards of patient interventions are developed. Other disciplines provide working methods for music technology integration with improvisatory music making.<sup>14-16</sup> The Stanford Laptop

Orchestra reports success in exploring computer-mediated live performance,

At the same time, it leverages the computer's precision, possibilities for new sounds and for fantastical automation to provide a boundary-less sonic canvas on which to experiment with, create, and perform music.<sup>14</sup>

It is clear that the use of this music technology is making the case for the inclusion of this class of disruptive technologies in music making. It is unclear as to how this will translate to clinical work. There are several disadvantages discovered in practice. In my clinical experience, older patients often lack cultural congruence to these hand-held devices. Patients with dementia have expressed fear of these devices while interacting with the system. Finally, there is the question of obsolescence and cost when compared to other methods of providing therapy.

However, digital hand-held music-making devices offer improvements over the limitations that are commonly found on traditional instruments. The playing field is leveled with digital hand-held music-making devices. There are fewer physical limitations, abundantly rich sonic opportunities and robust algorithms that negate the need for prerequisite music making skills or task readiness. When these factors are combined with the capabilities of hand-held music-making devices for instant recall to configure to a user's unique physical needs, we have a distinct advantage to this class of devices for clinical work.

The next steps for the inclusion of digital hand-held music-making devices in clinical practice are

1. The creation and development of applications that allow for rhythmic organization with autocorrection, memory enhancement and revitalization, vocal empowerment, mobility with fluidity. These applications should provide data sets that are diagnostic, prescriptive, interactive, and demonstrate patient progress toward specific goal attainment.
2. The development of accepted, common guidelines from experts in the field. Best practices need to dictate methods. It is recommended that the use of Creative Commons licensing<sup>17</sup> and open-source networks<sup>18</sup> be employed to spur development and sharing of technology. There is the need to create taxonomy of understanding that incorporates the vocabulary, structure, and architecture of hand-held music devices into clinical practice. This taxonomy needs to codify the potential, the pitfalls, and methods that will enable clinicians to conduct the process of therapy in a cohesive and cogent manner.

## Conclusions

This goal of this commentary is to inspire action toward the creation of enhanced clinical interventions using digital hand-held music devices. It is this author's opinion that there is great potential for effective and meaningful interventions with this

class of devices. It is paramount that our patients' unique clinical needs dictate the quality of our interactions. These musical devices are already present in medical settings. Yet, current clinical practice with these devices can be haphazard, ill-informed, and at times, ineffective.

It is necessary that we research interventions that embrace sustainable, replicable, and culturally congruent methods of clinical interventions. This will require serious study and scholarship. It is essential that we investigate and create devices that are unique to our clinical needs before any system of clinical methods is developed. It is also essential that we continue to embrace methods that are derived from best practices and clinical trials of related fields. Collaboration will be the key to proper development. Future clinical devices and methods should be technology neutral that is not specific to a manufacturer or group. These methods and devices include the use of open-source materials that are readily available and widely distributed.<sup>19</sup> It is through the creation of these collaborative and inclusive materials that we will begin to answer the overriding question of the conditions required to create productive, therapeutic methods with digital hand-held music devices in contemporary clinical practice.

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#### References

- Negroponte N. *Being Digital*. New York: Knopf. 1995.
- Heffernan V. The Medium: Prize Descriptions. *New York Times Sunday Magazine*. November 7, 2010 ed. New York: New York Times; 2010:30-32.
- Haire M. A Brief History of The Walkman. 2009; [www.time.com/time/nation/article/0,8599,1907884,00.html](http://www.time.com/time/nation/article/0,8599,1907884,00.html). Accessed December 5, 2010.
- Magee W. Electronic technologies in clinical music therapy: a survey of practice and attitudes. *Technol Disabil*. 2006;18(3): 139-146.
- Crowe B, Rio R. Implications of technology in music therapy practice and research for music therapy education: a review of literature. *J Music Ther*. 2004;41(4):282.
- Streeter E. Reactions and responses from the music therapy community to the growth of computers and technology—some preliminary thoughts. *Reactions*. 2007;7:1.
- Kurzweil R. *The Singularity Is Near: When Humans Transcend Biology*. New York, NY: Viking Adult; 2005.
- Osterwalder A, Pigneur Y. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. New York, NY: Wiley; 2010.
- Anderson C. *The long tail: why the future of business is selling less of more*. New York, NY: Hyperion; 2008.
- Kuhn T. *The structure of scientific revolutions*. London: The University of Chicago Press; 1996.
- Festinger L. *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University; 1957.
- Perlmutter A. Orff-Schulwerk with and without Orff Instruments. *Teaching Music*. 2009;16(5):48.
- Magee WL. Music Technology in Therapeutic and Health Settings. Presentation at Music Technology: Solutions to Challenges, June, 2010, London. 2011; <http://www.rhn.org.uk/pdf/Magee%20Music%20Technology%20in%20Therapeutic%20&%20Health%20Settings.pdf>. Accessed March 7, 2011.
- Choi H, Wang G. LUSH: An Organic Eco+ Music System. Paper presented at Proceedings of the 2010 Conference on New Interfaces for Musical Expression (NIME 2010) 2010; Sydney, Australia.
- Wang G, Bryan N, Oh J, Hamilton R. Stanford Laptop Orchestra (SLOrk). Proceedings of the International Computer Music Conference 2009, 505. 2009;508. <https://ccrma.stanford.edu/~ge/publish/slork-icmc2009.pdf>. Accessed March 9, 2011.
- Fiebrink R, Cook P, Smallwood S, Trueman D, Wang G. Laptop Orchestras and Machine Learning in Real-time Music Performance 2009. <http://computationalcreativity.org/cameraready/fiebrink.pdf>. Accessed March 7, 2011.
- Creative Commons. What is Creative Commons? 2010; <http://creativecommons.org/about/what-is-cc>. Accessed November 5, 2010.
- Jarvis J. *What Would Google Do?* New York, NY: Harper Collins; 2009.
- OSI. The Open Source Definition (Annotated) 1.9, 2011. <http://www.opensource.org/osd.html>. Accessed March 7, 2011.

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