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Honors Thesis

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Abstract

Music therapy is a healthcare field wherein music experiences and the myriad relationships formed between client(s), board-certified music therapist(s), and music activates health-oriented changes (Bruscia, 2014). Within this field there are multiple facets that directly impact the client's experiences; these include: arrangement of the therapy environment, role and function of music experiences, therapeutic relationships, and communication in verbal and non-verbal forms. However, there is a gap in the education and training of music therapists concerning alternatives to verbal communication, and the use of these alternatives in therapy. Through interviews and analysis, this thesis presents findings regarding the experiences of one non-speaking music therapy participant, and three board certified music therapists with relevant expertise, to empower professional and student music therapists to advance their engagement with non-speaking clients in music therapy.

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Introduction

Music therapy is a healthcare field wherein music experiences and the myriad relationships formed between client(s), board-certified music therapist(s), and music activates health-oriented changes (Bruscia, 2014). Client experiences in music therapy are impacted significantly by a range of musical, relational, and environmental qualities and practices of the music therapist.

One of these facets is, of course, verbal communication. Communication is something that most people take for granted in their daily lives, and yet, without it, many of us wouldn't know how to go about even simple interactions. However, lack of access to verbal communication is the reality for over 2.9 million non-speaking children in the United States alone (Margolis et al., 2020). These children are growing up and becoming adults in a world that is more technologically advanced than ever before, and yet gaining access to technology that can assist in communication (Assistive Communication Devices) is overwhelming, pricey, time-consuming, and in some cases, unrealistic.

This thesis explores: (1) the effectiveness and history of music therapy with non-speaking clients, (2) the challenges faced by non-speaking clients in clinical settings and their causes, and (3) the current technology and techniques for assistive and augmented communication (AAC) and music-based support of communicative expressions, and how these resources can be used or enhanced in music therapy with non-speaking clients.

Literature Review

Relevant Models of Therapy

Models are overarching ways of approaching assessment, treatment, and evaluation in therapy, informed by theory and philosophical orientations on health and

human relationships. A model is not, "a single finding or construct; it is a set of ideas that are logically related to one another" (Bruscia, 2014 pp. 199). Models can be largely cross-disciplinary, in that they shape the practice of music therapists, art therapists, counselors, psychologists, researchers, and more. The Medical Model of Disability, and the Social Model of Disability represent differing frameworks for understanding disability and, therefore, therapy practices with non-speaking people.[1]

Medical Model of Disability

The medical model views disability as, "resulting from an individual person's physical or mental limitations, and is not connected to the social or geographical environments. The medical model focuses on finding a cure or making a person more normal" (Accessible Education Center, n.d, para. 3). Furthermore, the medical model of disability operates as a scientific discipline specifically focused on diagnosis, decreasing risk of disease or illness, and treatment of identified pathologies. Operating according to a medical model often involves preventive measures, and treatment of pathologies, which is a common practice today, specifically in Western Medicine. In alignment with a medical model, pharmacological remedies are largely sought out as a solution to remedy illness. However, there are no pharmacological treatments for many disabilities or symptoms of disability.

Additionally, music therapists do not prescribe medication or diagnose. Therefore, music therapy centered in a medical model of disability is focused on an individual's

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[1] Throughout this thesis, identity first language will be used based on engagement with current perspectives and resources from disability advocates. Specifically, the researcher references this quote from Lydia Brown, an Autism Self Advocacy Network writer; "It is impossible to affirm the value and worth of an Autistic person without recognizing his or her identity as an Autistic person. Referring to me as "a person with autism," or "an individual with ASD" demeans who I am because it denies who I am" (Brown, 2023, para. 8).

disability-related and illness-related impairments and needs. According to this model, the music therapist will work to assess needs, provide treatment that minimizes pathology or otherwise distressing or impairing symptoms of a disability, and will evaluate progress according to primarily physical, physiological, and neurophysiological health changes. Through a medical model of disability lens, clients are generally seen as having a problem that needs to be fixed. In application with non-speaking clients, treatment generally involves diagnosis with communication disorders, and speech therapy with the goal of creating speech patterns.

Social Model of Disability

The social model of disability is a framework for understanding that disabilities are only as restricting as society makes them. Therein,

> ...the social model asserts that 'disability' is not caused by impairment but by the social barriers (structural and attitudinal) that people with impairments (physical, intellectual and sensory) find in various arenas. The social model of disability acknowledges that society oppresses disabled people, and it follows that improvements in their lives necessitates the sweeping away of disablist social barriers and the development of social policies and practices that facilitate full social inclusion and citizenship. (Thomas, 2008, p.15).

It is important to note that, from this point of view, the therapist does not ignore or avoid labels or acknowledging differences in ability. Nor does this theory unrealistically assert that a perfect society without barriers is around the corner. Rather a social model of disability encourages action to minimize the inequalities we can. For example, this may involve practicing music therapy with the understanding that

therapeutic goals might look similar for both disabled and non-disabled individuals (Gross, 2018, pg. 6). Additionally, the deconstruction of power imbalances is an essential reflexive process according to a social model of disability. The therapist must not enter the therapeutic space with the idea that they are the all knowledgeable helper, coming in to fix the client to whatever degree they deem. Rather, the therapist enters this space as an equal, helping the client to actualize their potential, and working on goals that are relevant and important to the client.

In essence, this model focuses on the idea that a client is not a problem that needs to be fixed. Looking at a client in that view is only perpetuating the barriers constructed by the world. Instead, according to this model, music therapists should seek to understand their client, their strengths, their wants, and, therefore, how to support them.

Defining Communication

What Is Communication?

The frequency of communication in everyday life is often underestimated. In reality, throughout our entire lives we are constantly communicating our thoughts, needs, preferences, feelings, and more. As we age, communication evolves. Additionally, communication styles and modes are varied given cultural and personal differences. Defining the intricacies of communication–as communication represents such a broad phenomenon–is undeniably difficult. Any definition considered to be valid must take into account the nuances involved in communication, and the innumerable ways in which it is carried out. According to the Mirriam-Webster dictionary, communication is "a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior" (2021, para. 1A). In a therapeutic context, communication is

defined as, "an exchange between the patient and provider using verbal and non-verbal methods. The ultimate goal of this communication is to help the patient overcome some form of emotional or psychological distress" (Sharma & Gupta, 2022, para. 7). This definition classifies exchanges into "verbal" and "non-verbal".

Verbal & Non-Verbal Communication

Verbal and non-verbal categories of communication have often been classified as distinct channels of communication. Typically, verbal communication is used to exchange specific semantic information, while non-verbal communication relates to the image content along with the general feelings and emotions associated with the message (Esposito, 2007, p. 6). Specifically, verbal communication is facilitated through sound output registered by a hearing intake. Usually, this means the human voice being received by the human ear.

However, every person is not able to use their vocal chords in the same way. The majority of individuals develop skills over time that enable them to vocally produce stimulus recognized by others as a common form of verbal language. Others may have the capacity to physically create this stimulus, but not within an organized manner that is broadly recognized semantically. This sound output is classified as vocalization.

Developmentally, humans vocalize before verbalizing language. These "vocal tones that develop speech" (Plazwiske & Allen, 1985, p. 1), are sometimes referred to as paralanguage in order to distinguish them from verbalizations. As development progresses, individuals who do not begin to meet the expected verbal benchmarks have historically been labeled as "non-verbal", due to their inability to organize vocalizations into a recognizable verbal language.

The American Speech-Language-Hearing Association (ASHA) gives very detailed descriptions in their official guidelines under the subheading of communication disorders. A Communication Disorder is, "..an impairment in the ability to receive, send, process, and comprehend concepts or verbal, nonverbal and graphic symbol systems. A communication disorder may be evident in the processes of hearing, language, and/or speech…[and] may range in severity from mild to profound" (ASHA, 1993, para. 2).

Within the category of Communication Disorders, there are four sub categories: Speech Disorders, Language Disorders, Hearing Disorders, and Central Auditory Processing Disorders. Most often, a label of "non-verbal" is associated with Speech or Central Processing Disorders. The cause of these disorders can vary greatly (ASHA, 1993, para. 1-8). According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders,*

> A speech sound disorder is diagnosed when speech sound production is not what
> would be expected based on the child's age and developmental stage and when the
> deficits are not the result of a physical, structural, neurological, or hearing
> impairment. Among typically developing children at age 4 years, overall speech
> should be intelligible, whereas at age 2 years, only 50% may be understandable.
> (American Psychiatric Association, 2013, p. 44)

Use of the Term Non-Speaking in Place of Non-Verbal

The usage of the language non-verbal likely originated as early as the 1850s. The word "verbal" is known to be defined around this time, especially in combination with the Latin root "noenum", meaning "not the one" (Online Etymology Dictionary, 2019, para. 2). Because this word has statically existed for centuries, while the scientific world

around it changes, this term has become out of date. The descriptor non-verbal not only generalizes differing groups of people into one inaccurate category, it also thrusts an inaccurate label on to individuals who may not identify themselves with this descriptor.

Speech Language Pathologist, Corrina Riggs, explains that the language we use to identify ourselves, and be identified by others, can have lasting effects (Riggs, 2021). Furthermore, the word non-verbal has come to have a certain stigma of not having/being able to understand verbal language. On the contrary, many individuals historically labeled as non-verbal may have receptive language ability, but no verbal expressive language. Or, individuals may not be able to produce what is a typically recognized verbal language, but do produce and use language to communicate accurately with some individuals familiar with their communication style or method.

In order to encapsulate these differences, as well as respect the individuals who identify as such, the term "non-speaking" has gained traction in recent years. This defines a person who is, "Unable to articulate words, perhaps because of Apraxia of Speech or other oral-motor difficulties, or perhaps because of lack of access to speech sounds" (Beals, 2022, p. 286).While the term non-speaking does involve an inability to produce widely recognized verbal language, it recognizes an individual may retain some vocalization skills and/or the ability to process speech. This definition accounts for the caveats that the term "non-verbal" does not.

Using the term non-speaking results in more accurate descriptions and personal identifications. When an individual is able to accurately identify themselves, a therapist can more accurately work with them to shape treatment and better support growth (Riggs, 2021). Furthermore, the term "nonverbal communication" is frequently used in literature

to describe gestures and facial expressions, not as a description of personal status or abilities. This results in barriers to access research and resources that are potentially clinically relevant for both therapist and client. Accordingly, throughout the rest of this paper, the term non-speaking will be used when referring to any individuals as described above.

Methods of Communication

When people do not communicate verbally, they often develop ingenious ways of alternate communication. Alternative and augmentative communication methods include American Sign Language and Assistive Communication Devices among other more individualized communication methods.

American Sign Language

American Sign Language (ASL), although not the only type of sign language, is the type most often utilized in North America (State of Rhode Island CDHH, 2023). The first appearance of a sign language unique to the United States occurred in the early 1800s. The first school for the deaf, strongly influenced by its French founders, followed soon after in 1817. Due to the French Sign Language background of the founders (Thomas Hopkins Gallaudet and Laurent Clerc), ASL emerged as a melting pot of historically French signs, and many new signs that would truly Americanize the language.

ASL utilizes hand and finger movements, along with facial expressions as a way of communicating. And, while there has been a plethora of research in the area of employing ASL in working with deaf participants in music therapy, there is significantly less research regarding the integration of ASL with non-speaking participants in music

therapy. However, examining the available literature surrounding any integration of ASL in music therapy sheds light on possibilities for future practice.

A case study by Johnson Ward details music therapy with an individual who was diagnosed deaf at a young age. The client primarily communicated with the therapist using ASL. The therapist was able to utilize all four methods of music therapy as defined by Bruscia (2014): re-creative, composition, improvisation, and receptive. In many experiences led by the therapist, it was the use of select words and common phrases in ASL, rather than word for word translations, that led to the most success (Johnson Ward, 2016). As such, the use of ASL in music therapy can significantly maximize communicative opportunities. The therapist works to adjust, as is possible, to the communication mode of the client, and does their best to incorporate that communication in all facets of their treatment.

Augmented and Assistive Communication Devices

As defined by the ASHA, augmented and assistive communication devices (AAC or ACD) are any non-tech, low-tech, or high-tech physical aid in the production of communication (as defined above). These devices most commonly, "...make use of picture-based representation of concepts and often provide a multi-modal interface that combines images, text, and speech audio. Most assistive devices also enable phrase or sentence composition by assembling words in a linear fashion" (Nikolova, 2010, p. 2). There are two primary categories of AACs, unaided and aided communication. Unaided communication includes: facial expressions, body language, gestures, and sign language. Unaided communication encompasses any form of alternative/augmented communication that does not require a physical aid (AssistiveWare, 2023). Aided communication

includes: symbol boards, choice cards, communication books, Picture Exchange Communication Systems (PECS), Pragmatic Organisation Dynamic Display (PODD) systems, keyboards/alphabet charts, speech-generating devices, and AAC apps. All aided communication involves physical aids that help to facilitate or produce communication.

There are a multitude of devices that can provide communication services to individuals, but technology is not always an option. Non-tech options such as PECS/POD are typically small boards, or even pieces of paper, that include important images for commonly used words such as bathroom, help, want, need, etc., along with names of important people in the individual's life. These can provide a significant resource in communication, however, for some users the restricted scope of functionality can be limiting and frustrating (Roberts, 2020). Symbol boards, choice cards, communication books, and alphabet charts can also fall under these no- or low-tech sub categories (ASHA, para. 1 - 3). Many non-tech physical aids have begun to offer high-tech options, such as PECS systems on ipads. However, the most common high-tech options are speech-generating devices or communication applications on common devices such as smartphones, tablets and laptop computers. These devices often include pictures that can be selected to correspond with a spoken automated voice. Alternatively, some systems allow the user to type specific phrases, or select shortcuts, that are in turn vocalized by the automated voice (AssistiveWare, 2023).

The possibilities of AAC use are constantly expanding. Since the 2000s, the advancement of computer technology has led to the development of higher quality options for non-speaking individuals (Light et.al, 2014). In a case study by Roberts (2012), a 5 year old client with quadriplegic Cerebral Palsy engages in music therapy.

Throughout therapy, Roberts details the child's use of both an AAC device and verbalization noises to express thoughts, emotions, and desires. However, Roberts also details the challenges faced by the client. The participant could not use the device with assistance, as her wheelchair arms were too bulky to allow for the tablet to be brought within resting reach. Because of these difficulties, the client was not often offered the use of her device in classroom settings, because instructors/helpers found the use of it too time consuming. Throughout music therapy sessions, Roberts worked with the participant to help her increase her muscle motion to aid with selection. And overall, Roberts expressed that the use of the communication device did aid the communication processes within the sessions. Following treatment, the client was anticipating access to a new device that would employ eye motion tracking to further enable communication, illustrating the progression of technology (Roberts, 2012).

Ultimately, increased use of AAC devices has been a continually growing trend, partially because of the increase in technology access, but also the increase in need. Today, 1 in 8 children in the United States is diagnosed with Autism Spectrum Disorder (Centers for Disease Control and Prevention, 2011). Of these children, 30-50% will not develop abilities of consistent spoken communication (National Research Council, 2001). Furthermore, the increase in medical technology has become so successful that many disabled children have an increased life expectancy, resulting in more need for assistive devices. As our technology advances, so too will lifespans and demands for AAC devices.

Music Therapy and Non-Speaking Clients

Autism Spectrum Disorder

According to the CDC, over 5.4 million adults in the United States are diagnosed with Autism Spectrum Disorder (ASD), as well as 1 in 4 children (Center for Disease Control, 2022, para. 2). The diagnosis rate of ASD in the United States has been growing as understanding of the label has shifted. Many music therapists have historically, and continue to, work with autistic children and adults. In music therapy work with autistic people, a common reason for referral is to develop communication ability. According to a 2016 study by Rose, about 35% of individuals with ASD are non-speaking.

In a study conducted by Abrams (2014), 10 board-certified music therapists participated in a focus group to discuss the impact music has on autistic non-speaking children specifically. It was determined that what makes music so effective with autistic persons included the capacity of music to boost motivation. This motivation through music could be utilized to develop AAC usage, or introduce new techniques/devices for communication. The study explains, "there was a statistically significant difference in the nonverbal communication of the children with ASD as determined by analysis of video recording that showed how often negative and positive behaviors occurred" (Abrams, 2014, p. 14). The implications of this study are that more positive communication interactions occurred through the course of, and after music therapy, than before. Abrams goes further to explain, from a survey, that many music therapists believe the impact music has for clients using AAC devices is increased motivation. This increased motivation helps the client retain attention and expand capacity to utilize various AAC techniques or devices, and is central to quality care and treatment (Abrams, 2014).

A study by Reschke-Hernández (2011), compiling history and techniques used with autistic clients, describes a multitude of skills music helps to enrich, such as: oral

muscle functioning improvement, vocalizing with intent to communicate, shaping words to follow natural voice fluctuations, and more. These skills can directly contribute to improving speech production. In music therapy, these skills may be activated through experiences such as oral motor exercise, vocal improvisation, melodically shaped speech, syllable stress patterns, singing vowels/consonants, feeling the vocal mechanism, awareness of vibration, use of melodic contour, and use of rhythm.

Skills acquired in music therapy can also relate directly to the use of AAC technologies as described in the previous section. The work of motor movement, imitation exercises, order sequences, and choice making, may contribute directly to an individual's potential improved use of AAC (Reschke-Hernández, 2011). Motor movement and imitation exercises can help strengthen the needed muscles to operate the pointing or selecting systems many AAC devices require. Order sequences and choice making exercises may support an individual's ability to demonstrate agency through their expression when options are available.

Clinical Practices

Music therapy offers unique opportunities in support of expanded communication, because of the integration of music. When communication is conducted, the process necessitates a sender, a message, code, decoding of message, and reception. To quote a 2009 study by Brandalise,

> Therapist and client alternate places and functions of receiver/transmitter searching for adjustments/checkings, in order to establish the communication system. What does a person in a music therapy process very often do? *Sings*…To sing means to transmit a message. To transmit a message means to have the capability of selecting

and combining elements of a certain code…Therefore, *intention* is extremely important but not enough to adequately manifest the act of communication. Physical and psychological conditions are needed in order to execute such a task. It is necessary that both transmitter and receiver are capable of responding to their respective functions to successfully achieve the task called "communication action" (Brandalise, 2009, para. 11).

The ways in which a therapist undertakes this communication can be enormously enhanced through the medium of music. Thus, the importance of using song as a form of communication, whether it is pre-recorded, composed, improvised, or live, is an indispensable clinical practice that can be applied (Brandalise, 2009).

Sigafoos, O'Reilly, & Green (2007), worked with a two year old infant diagnosed with Spastic Quadripeligia. This two year old was non-speaking, and due to the frustrations associated with lack of access to communication, often had uncontrollable outbursts, most often when non-preferred food was presented. Through the course of treatment, the child learned how to use sign language, specifically the sign "no". This, along with his mother learning sign language, and only reinforcing non-aggressive forms of communication, was successful in decreasing outburst and increasing quality of life. Sign language was able to be used by the child which decreased angry outbursts, creating a platform from which more communication skills could be developed.

Although AAC devices can offer great affordances to non-speaking individuals, the lack of support from educators and therapists in the usage of such devices is harmful. It was found that a lack of support was one of the biggest barriers to a client's ability to use AAC devices to their full potential (Sweeny, 2015). One of the reasons for this is a

lack of training for therapists on understanding and integrating AAC. A 2011 study found that 60% of music therapists reported no training with AAC devices and techniques. The 40% that did receive training, did not receive it from an educational institute, but rather from speech-language pathologist colleagues (Gadberry, 2011). The study found that 73.9% of respondents believe that further training in this area is critical.

Magee et al. (2011) described her use of a voice output communication aid (VOCA) in music therapy practice. This technology allowed the therapist to record spoken phrases and words that could be activated by a switch/strike from the client. In the case study, a hello song is illustrated during which the participant was able to select the pre-recorded "hello" button as a way of communicating with their music therapy group members. Eventually, the individual began to use this device frequently, during varied experiences, with the intention of creating communication (p. 146-150)

In essence, the potential gains of using AAC devices within musical therapy is well founded. Yet, it is the deficiency of both available resources and music therapist AAC specific training that leaves many music therapists with little support for integrating AAC into their clinical practices.

Methods

This qualitative study involved semi-structured interviews to explore the techniques and technology that current board certified music therapists utilize in their practice with non-speaking clients. Interviews were conducted with three music therapists and one non-speaking participant in music therapy. All interviews were conducted over the Zoom © video conferencing platform, and then transcribed. Transcript content was analyzed for salient themes.

Predetermined sets of questions were drafted specifically for the music therapists, and for the client (see Appendix A & B). During the course of the interviews, some questions were rephrased for increased clarity, and occasionally interview participants shared additional information not initially requested by the provided questions. The interview questions and the research methodology of this study were reviewed and approved by the University of Dayton Institutional Review Board.

Participants

Participants in the study were recruited through word of mouth, emails to individuals, and a recruitment announcement posted to specific music therapy Facebook groups. Interested individuals then filled out a questionnaire with information about their music therapy experiences. The primary investigator and advisor considered the range and number of years of experience working with non-speaking persons, along with the variety of such experiences (i.e engagement with individuals who use AAC devices), in making ultimate music therapist interview participant selections. Thus, the interview participant sample is not representative of the music therapy practitioner population broadly. Due to the scope of this particular research study, a focus on experienced clinicians and their expertise was deemed to be helpful in filling gaps in the literature. Future and more broad research into music therapy practice with non-speaking persons is warranted.

Three music therapists were selected to participate in interviews. The non-speaking music therapy participant was invited to participate in the study after his music therapist was interviewed and referred him as a candidate for participation. All

participants signed and completed written consent forms, and were compensated for their participation with a monetary incentive.

The first music therapist interviewed was Roia Rafieyan. She has been in the music therapy field since 1977 when she earned her undergraduate degree in music therapy from Temple University. Roia continued her education by earning a masters of arts in music therapy from Drexel University in 2002. She then worked at a developmental institutional center for thirty three years, with both speaking and non-speaking individuals, until her retirement in 2021(R. Rafieyan, personal communication, September 21, 2022).

The second music therapist interviewed was Juanita Eslava. Originally from Colombia, Juanitia received her master's equivalency from Temple University and completed a PhD from Aalborg University, focusing her research on the subject of neuropsychological assessments in music therapy. After gaining experience in institutional and neurological work, she returned to Colombia. She has, and currently works with autistic children (J. Eslava, personal communication, October 6, 2022).

The third music therapist will remain anonymous, and will further be referred to as Music Therapist 3. After receiving both their bachelor's and master's in music therapy, they have worked in institutional settings providing music therapy, conducted some private practice medicaid waiver work, and primarily serve autistic individuals (anonymous, personal communication, October 11, 2023).

The interview participant who has engaged in music therapy is Seth. He requested that his first name only be used in this paper. He uses an Accent © assistive communication device, which is a tablet-like device that utilizes a grid setup with print-

speak capabilities. This means he selects combinations of picture symbols to create speech that is output by the device. He has participated in individual music therapy with multiple board certified music therapists. Seth expressed an enjoyment for playing the bells during therapy, and hopes to learn the piano. He has been working with his current music therapist for two years (S. anonymous, personal communication, December 9, 2022).

Analysis

After interviews were recorded, they were transcribed using the voice to text transcription feature built-in to Zoom ©, then the primary investigator made text corrections by listening back to the original content and adjusting the transcriptions accordingly. The transcriptions were analyzed for salient content by first having the primary investigator read the transcriptions completely then select salient information or meaning units from each interview. Next, these meaning units were color coded based on five themes, identified through a review of the selected content and adapted from original themes used to organize the interview questions. The secondary investigator and advisor also reviewed interview transcripts to identify any additional salient content, and propose adjustments to identified categories. These additions and alterations in meaning units and organization were then discussed and finalized by the research team. Based on the three music therapist interviews, five topic categories were identified, including: AAC devices, therapist training experiences, ethical and values based practice, techniques, and method-variations. Each meaning unit was then placed into a spreadsheet, categorized by topic. Next, each meaning unit was condensed to provide a more streamlined collection of information.

Seth's interview was analyzed using the same process. However, not all of the identified meaning units fit neatly into the same topic categories as the therapist interviews. Meaning units from his interview were organized according to three topic categories: technique advice, personal experiences, and AAC. Noticeably, some categories do mirror those of the therapists, yet the primary investigator thought it important to have a distinction between music therapist and music therapy participant perspectives as a way of emphasizing Seth's voice.

Results

Training Experience of Music Therapists

A common theme among all three music therapists was feeling exceedingly unprepared to facilitate therapy involving AAC devices. Roia expressed that through her time working as a music therapist, there was a significant shift in what were considered optimal treatments for non-speaking patients, and to that effect, Clive Robbins and Ken Brusica did set up clinics to help train music therapists in non-behavioral techniques. Yet, it was really through the lens of supervision that Roia felt the most supported in learning to work with non-speaking people. Being able to talk to someone that understood the work you were doing, and might have suggestions for practice was essential in helping ground her therapeutic work.

However, most of this work was skill based, and Roia expressed feeling as if there was more she could be doing. She found the key to doing more was listening to the real experts, that is, the participants themselves. Juanita asserted that it is important to look and see how the client is responding to your actions. Even if they are not giving you verbal feedback, body language plays a huge role in telegraphing an individuals'

comfortability and consent. This type of work lends itself more to a psychodynamic lens of practice, as the therapist is really utilizing relationships to help further the therapeutic process.

Juanita went on to explain the importance of interdisciplinary training. Although she received no direct training with AAC during her formal music therapy education, her internship made it possible to work with an interdisciplinary team, and this helped her gather bits and pieces of information that were then applicable to her practice as further elaborated in the Music Therapy Experiences section. Even understanding the terms that other professionals, such as speech language pathologists, use can be an important part of education that is frequently overlooked. Speech development terminology (i.e linguistics, pre-linguistics) is also infrequently discussed in music therapy training and education, and many therapists only learn these terms if they are able to connect with such professionals or those with lived experiences.

Music Therapist 3 agreed with a general lack of education around the use of AAC in music therapy training. They found that their programs, although offering education in the nature of how music can support communication, did not prepare them to work with alternative methods of communication. Additionally, Music Therapist 3 found that this lack of education was especially apparent as a therapist who works in a private practice setting. Most of the information they received in the way of working with AAC came from supervision, but they also pointed out that supervision access can be quite limited in the context of private practice.

Lastly, Seth concurred that more education on the part of the therapist is vital. He suggested that all music therapists should take a class in AAC. He emphasized that a

course like this would assist therapists in understanding what he is doing as he

communicates, and how difficult it is.

Ethics and Values Held By Therapists

Throughout the course of interviews, it was clear to the researcher that the

participants each carried a very strong sense of ethical responsibility, and were

intentional in describing their views surrounding music therapy work with non-speaking

people. Their views were especially striking regarding the music itself as communication,

unfound assumptions of non-speaking individuals, and therapist education. Considering

the communicative possibilities of music, both Juanita and Music Therapist 3 talked

about the nuances of communication purely through music, with no other external aids on

the part of the client or therapist. Juanita explained,

> I believe that non-speaking people and speaking people can communicate musically
>
> without words or sign language or devices…in the psychoanalytic and
>
> psychodynamic approaches to music therapy which is really music-centered in the
>
> sense that a person's responses and their emotions and their interactions can be
>
> further analyzed, based on their musicking.

Music Therapist 3 emphasized the way in which music can be used to support

groups with both speaking and non-speaking clients. They explained that any experience

can include non-speaking individuals, and that these integrations of communication

methods can impact and enrich expressive opportunities for all group members.

Another clear ethical theme that arose through interviews included the general

assumptions and abuse that often assail non-speaking people. Roia was especially attuned

to this trauma through her work at an institution. She explained that a lot of abuse goes on

when it comes to non-speaking people due to their lack of verbal communication. For instance, the staff would often take advantage of the patient's inability to speak up, or assume that their receptive capabilities were limited, and make choices that did not line up with the clients' wishes or without their consent. This further emphasizes why it is so important to understand the pervasive impacts of trauma and the importance of a social justice framework in therapy. In fact, when Roia first started working at the institution, non-speaking people were labeled "not stimulable for speech", meaning that they were not expected to produce speech, and therefore not given the opportunity to communicate. This is in drastic comparison to the use of the term "non-speaking", which is derived from reading the work of non-speaking people, and is often the preferred identifier for non-speaking people (Riggs, 2021). This neglect has been seen in multiple institutional settings, and individuals are often overlooked due to their perceived inability to communicate

Music Therapist 3 articulated the ways in which non-speaking people are often marginalized and assumed to be less intelligent or capable, however speech output ability does not correlate with receptive processing skills or intelligence levels (Cleland, Wood, Hardcastle, Wishart, & Timmins, 2010). In fact, Music Therapist 3 stated that speaking individuals could stand to learn from exploring the "non-traditional" ways of communicating that non-speaking people utilize. An increased understanding of these communication methods would aid in the development of equal access to music therapy through increased support of non-speaking people's autonomy, as well as facilitate expanded choice and communication opportunities within and beyond music therapy sessions for both therapist and client.

Techniques

The presence of music and music experience distinguishes music therapy from other therapy modalities. Music and music experiences involved in therapy can be different with different clients. Roia expressed that she often sang about what she was seeing, either in the room, or actions of the therapy participant. Using such singing to ask questions, and then take note of the client's response can be helpful in beginning communication through music. This music facilitation technique is often termed soliloquy as defined by Brucia (1987). With this technique, it is important to be aware of any potential countertransference, as it may bias the therapists' interpretation of client actions. This introduction of self and music therapy to the client through sung expressions can help the therapist gain understanding of how the person communicates generally, and correspondingly shift therapy practices as an invitation toward intentional communication.

Juanita pointed out that the more music can be used as a way of communication, the less speaking is used in general, and increasing the use of music as communication creates a space beneficial for all. Juanita specifically discussed the use of vocalizations. Through observation and repetition, the therapist can build a shared music vocabulary and identify patterns to get a sense of when the client is using these specific vocables, or vocal sounds, as a means of expression. Additionally, these vocalizations can be incorporated into songs that are built upon or adapted over time, in order to create a shared routine.

Music Therapist 3 also discussed vocalization techniques. They explained that vocalizing to validate music making, or to match improvisation provides another possible

layer of connection through music. Furthermore, this validation can reinforce the clients' leadership and autonomy of expression, because the therapist is reacting audibly to their music making.

The use of intentional eye contact as a way of answering yes or no questions was used by Roia In working with clients that did not have established communication preferences, she would ask them to make eye-contact for yes or refuse to make eye-contact for no. Seth expressed a preference for questions phrased in a yes/no or A/B format, as they were easier for him to answer with his communication device.

Roia also elaborated that working with each non-speaking client is akin to learning a new language, one that can only be understood and developed from intent observation, reflection, and careful interpretation that improves over time and with practice. Juanita echoed this, and emphasized the importance of communication being a two way structure of expression and comprehension. From her experience, some clients enjoyed hearing verbalizations and words being spoken to them. She also communicates through physical and musical modeling. It can be acceptable, and sometimes helpful to use speech with a non-speaking client because they understand language, and the therapist understands their responses. However, some non-speaking people find this type of verbal communication uncomfortable, or it increases their anxiety. In such cases, the communication between non-speaking client and speaking therapist should integrate other communication modes such as gestural and musical communication.

Because understanding the communication styles of a client is vital, there are specific steps a music therapist should take when beginning to work with a non-speaking client. The first step in working with a non-speaking client is to observe. The therapist

must work to understand the ways that the individual communicates, instead of imposing personal beliefs regarding how the therapist thinks they should be communicating. This type of observation can be completed through presenting options for a variety of instruments or pictures and noticing how the client relates to them (Juanita).

Juanita also explained that establishing a routine at the beginning of a therapeutic relationship is vital, because it provides structure for both the therapist and client to establish certain communication patterns and comfortability. This routine can also be essential in tracking progress, and modifying therapy approaches or experiences accordingly as clients progress and become more empowered in their communication.

When it comes to working with groups, Music Therapist 3 shared a few foundational techniques they employ. In a group setting, it can be more difficult to meet the communication needs of all individuals. Therefore, they found it most helpful to use a multi-faceted approach. This can involve singing, signing, and using pictures at the same time. Although this approach may feel chaotic, it can improve access.

When integrating individual use of AAC devices during group therapy, it is important to note that experiences and processes may vary considerably. Some AAC users may have a standalone system, while others may have an app on a device. Giving space and time in the group for all types of communication is especially important, and the therapist's patience and comfortability with silence while waiting is key. The therapist must remember that it's not "their" group, but rather, the group belongs to the client members. The therapist's role is to facilitate collaboration and communication among members.

Lastly, interview participants had advice about general therapy practices. Roia

learned from experience that it's vital to understand how individuals show up to therapy, with regard to their past experiences during therapy or other forms of treatment. Some may avoid music therapy simply because they don't desire hand over hand intervention that they believe is unavoidable. She also described the importance of giving time and space for patients to communicate thoughts and feelings, especially when seeking patient consent for treatment. This can be done by posing a direct question, or observing body language when it's time to begin music therapy. However, for this to be effective, the therapist must hone in on the little expressions, paying attention to inconsistencies and patterns. Whatever a client decides, it is important to give them space, and ample opportunity to communicate something differently, change their mind, or take time to verify that your interpretation of their communication is correct.

Music Therapist 3 also brought up the topic of client interest versus guardian interest. Sometimes, a guardian of an individual may believe some resource is necessary, for example insisting that an interpreter be present during sessions. However, Music Therapist 3 found that the client doesn't always want to have their interpreter present. Therefore, the therapist must seek to address the client's wants and needs. Additionally, practical needs must be addressed too: having extra charging cords, yes/no cards, visual cards, and accessible instruments can all help the client achieve greater autonomy.

Seth shared his perspective on the topic of general therapy and therapist practices. He expressed that he prefers questions that are yes/no style, or numbered options. This helps him to be able to respond more quickly. He also noted that while communicating in general, he uses the same hand to work his communication device that he does to drive his wheelchair. This means that he can not use his device and move his wheelchair at the

same time. He expressed frustration surrounding instances when people walk somewhere with him, talk while moving, and expect him to answer.

Music Therapy Experiences

When it comes to specific experiences used in the treatment process, the consensus was that any method variation within recreation, receptive, improvisation, and composition (Bruscia, 2014) can be utilized with non-speaking clients. There should be no limits in the scope of treatment, instead the therapist should seek to individualize music therapy treatment. However, improvisation and composition were reportedly utilized most often by the interviewed therapists.

Juanita expressed that composition and improvisation can be used to create something beautiful and valuable shared between the client and therapist. She particularly noted that she has found these methods to be successful in addressing self-identified clinical aims of cerebral palsy clients. Juanita explained that composition is particularly important because the method can provide opportunities to practice and further develop cognitive organization skills. When working with clients utilizing communication devices, they can absolutely contribute preferences just as any other client would (i.e style, lyrics, voice types, etc). In fact, having the capacity to make numerous choices and assert preferences and control can be very therapeutic and empowering. These compositions can even be turned into artifacts for client possession if saved on CDs/ as MP3 files and presented to the creator. However, it is important to take into account that song composition in particular can be heavily rooted in speaking and verbal skills, so it's important to inquire and honor any client's preferences to create a comfortable and meaningful experience aligned with their desires.

Assistive Communication Devices

While integration of ACDs can bring many positive benefits to therapy, there are some difficulties in practical utilization to be reviewed. Roia noted from experience that older client's sometimes decline the use of technology, and subsequently ACDs, because they are disinterested or uncomfortable using electronics. This does not rule out therapy, of course, because there are other ways to communicate that do not rely on electronic technology. Roia described a process wherein she guessed and provided choices, then offered and waited for the patient to make it clear when she named the correct option. This was a long process, but one that did result in many successful song selections and transformations. She also experienced that using yes/no cards, or other low-tech communication systems often caused a distraction for the intended client, or other group members. Additionally, when considering the impact of staff support, Roia noted that in some cases when a patient was given new equipment (in this case a picture board) staff neglected to utilize it, and other patients would abscond it.

Juanita detailed the road blocks she experienced in attempting to integrate ACDs during therapy with her clients. One of the largest prohibitors for electronic resources was cost. Although some apps can be useful tools, they are often pricey. Some apps are free, but they are limited in scope unless you pay a subscription fee.

Fortunately, there are also many features and recommendations that are useful to therapists seeking to utilize AAC within therapy. Juanita noted that along with the limited use of apps, graphics and pictograms can be helpful, especially because these can often be used outside of therapy by the client. In fact, it should be assumed that any ACD utilized in a session must be accessible and applicable for the client outside of therapy

and preferably is realistically portable. Additionally, she explained that co-treatment with a speech therapist can be extremely important, as they often can use their expertise to help choose and procure ACDs. When working with clients experiencing cognitive impairments, Juanita found communication boards to be effective, due to the flexibility of use and simple interface.

Music Therapist 3 echoed many of the considerations voiced by Juanita, but also emphasized the importance of being flexible and listening to the client's choice of communication method whether it is ASL, an ACD, PECS, gestures, or music. They also explained the advantages of using guided access, which can be found in the settings function of most touch screen devices. After enabling this function, there are certain actions that must be taken, such as a touch sequence or passcode before allowing an app to be exited. This allows users to touch the device however they desire, without accidentally quitting the app. Additionally, physically covering parts of the screen can provide a similar effect with a low tech solution. This can be particularly helpful so that a client can guide their fingers to select an option without accidentally hitting other buttons.

Seth also described some of his experiences with technology based assistive communication devices. He uses a device called "Accent", which is a grid-screen set up with 144 picture options. These pictures can be used to access further vocabulary, be spoken out loud to an individual, or combined into a sentence. Seth is less fully able to use his device if he is put on bed rest, and completely unable to use his device if his arm is injured. This can result in a lot of accidental speech activations when returning to use, again highlighting the importance of seeking understanding and practicing patience. When not using his device, or, sometimes to clarify statements, Seth uses two hand

signals along with facial expressions. He raises a hand up towards his face for "yes", and brings it down for "no".

Catalog of Alternative and Augmented Communication Devices

Although this section contains a myriad of AAC devices, it is not an exhaustive list. To find these devices, the primary investigator used searches such as "Low Tech Assistive Communication Devices", "Mid Tech Assistive Communication Devices", "High Tech Assistive Communication Devices", and "Communication Apps". Within these searches, there was a distinction made between aided and unaided alternative communication. Unaided AAC do not require physical aids or tools. Examples might include facial expressions, body language, gestures, and sign language. Aided AAC uses tools or materials, separate from the individual, to communicate (Assistiveware, 2023). Within these categories, Aided AAC can be classified into low, medium, and high grade technology depending on the type of device.

Figure 1

Low-Grade Technology

Device Name ↑↓	Description ↑↓	Cost ↑↓	Acquisition ↑↓
Adjustable Head Pointer	An adjustable alumni head band with attachment arm for page turner, pointer, or pencil.	233.99	https://tinyurl.com/5n9xh9yz
Choice Cards	A deck of cards, often on a key ring/lanyard, of symbols, pictures & photos, often matched with typed out words that can be selected to communicate.	$15	Create your own, or available for purchase from multiple vendors
Communication Boards	A sheet of symbols, pictures, & photos, often matched with typed out words that can be pointed at to communicate.	$6	Create your own, or available for purchase from multiple vendors
Communication Books	A binder or book containing pages of symbols, pictures & photos, often matched with typed out words that can be selected to communicate. The pages of these books are typically sorted into categories.	$50	Create your own, or available for purchase from multiple vendors
Eye Gaze Board	their gaze, confirm the choice, and speak the number or letter outloud to	$30 - 200	Create your own, or available for purchase from multiple vendors
TriFold Literacy Choice Boards	A self standing velcro board where communication cards can be fixed. Flipping the board allows for quick transitions.	$55.10	https://tinyurl.com/4hj4yp6a

Figure 2

Mid-Grade Technology

Device Name ↑↓	Description ↑↓	Cost ↑↓	Acquisition ↑↓
Bigmack	A single large button that can record one message for up to 2 minutes.	$155	https://tinyurl.com/5ezmbpkf
Go Talk 4 AAC	An electronic, but not digital communication device with 20 unique messages across 3 levels, and the ability to record your own. Each button is correlated to picture cards.	$179	https://tinyurl.com/59jjh5cn
Hip Talk Plus	An electronic, but not digital communication device with 12 unique messages all mounted onto a hip belt, and the ability to record 300 seconds of sound.	$329	https://tinyurl.com/2e5bcxzw
Logan ProxTalker Modular AAC Device	An adaptable recorded speech device that allows phrases corresponding to pictures to be recorded. Simply placing the picture on the device allows the speaker to be activated. Device comes with 180 picture slots.	$3,149	https://tinyurl.com/k6cyk494
Mega Bee	An Eye Gaze Board system with a built in LCD screen to display letters as they are communicated.	$1,595	https://tinyurl.com/2nahfb7u
QuickTalker Feather Touch 23	An electronic, but not digital communication device with 103 unique messages across five levels, and the ability to record your own. Each button can be customized with picture cards.	$265	https://tinyurl.com/mt7t6nx6
QuickTalker Feather Touch 12	An electronic, but not digital communication device with 48 unique messages across five levels, and the ability to record your own. Each button can be customized with picture cards.	$265	https://tinyurl.com/49tnaev8
Quick Talker 7	An electronic, but not digital communication device with 23 unique messages across five levels, and the ability to record your own. Each button can be customized with picture cards.	$265	https://tinyurl.com/2upvwjxj
Talkable IV with Levels	A set of buttons to record multiple messages, with space to hold cards at the top. Each device can record two messages.	$285	https://tinyurl.com/28r2r5jw

Figure 3

High-Grade Technology

Device Name	Description	Cost	Acquisition
Alpha Topics	A predictive text app that will predict your desired word as you type and then speak it.	$4.99	Apple or Google Play Store
Proloquo4Text	A single screen layout app available on the App Store	$119 - 180	https://tinyurl.com/46tbjhwm
Verbally	Presents multiple phrase grids and keyboard layouts	Free	Apple Store
Locabulary Lite	A library of phrases and locations that are selected by users	Free	Apple Store
Speech Assistant AAC	A text to speech app that is customized with common phrases along with a keyboard for new input.	$19.99	Apple & Google Play Store
SymboTalk	Presents multiple phrase grids and keyboard layouts, with customisable options available for new words.	Free	Apple & Google Play Store
Small Talk	From the company, Lingraphica, this family of apps are specifically designed for those with Aphasia, this app has communication grids with pictures, as well as videos containing speech exercises.	Free	Apple & Google Play Store
Accent	Accent is a standalone device that comes in variations of (1400, 1000, 800, Via Pro, & Via Minni). They all present a grid/screen set up with programmable words/pictures. Each picture can be selected a spoken individual, used as a way to enter a vocab section, or used to create a sentence.	$6,000 - 8,000	https://tinyurl.com/yzb5wvsw
Language Acquisition Through Motor Planning (LAMP) Words For Life	LAMP Words For Life is an app that uses motor planning training to guide users in learning to communicate using their devices. All pictures/words are fixed in their position, so the app can grow with the user without re-learning needing to occur.	$300	Apple Store for Ipads only
Voice4U	A symbol based communication app in a scrolling grid format.	$39.99-$59.99	Apple & Google Play Store
Go Talk Now	A customizable picture/grid based app specifically designed to be used in school settings.	$100	Apple Store for Ipads only
EESpeech Lite	A customizable picture/grid based app with varying modes based on user developmental age.There is a free version with very limited word choice.	$8.99	Apple Store
Speak For Yourself	A customizable picture/grid based app where words can be added in as the user needs them.Selected words can be used by themselves or put into a sentence format.	$300	Apple Store
Tobii	Speech generating device with multiple generations of technology available for purchase that utilizes eye movement tracking through infrared cameras.	$100 - 1,000	https://tinyurl.com/57hkyfyb

Recommendations

In conclusion, through interviewing music therapists with experience working with non-speaking clients, along with interviewing a non-speaking individual who has and continues to participate in music therapy, there was a lot of advice, information, and training practices to be considered and explored in regard to the integration and application of AAC in music therapy.

Through a review of the music therapy literature review, music therapy with non-speaking clients was found to be generally effective, but the scope of published research was limited in regard to client population, work with technology, and age range. Therefore, more peer-reviewed and published research on this topic is needed to address the many existing gaps in available resources.

Through interviews, the challenges and benefits of AAC in a music therapy setting were explored and analyzed. And, through the ACD categorization chart created above, current technology available was categorized and summarized. This information will be made accessible through this website www.aacforall.com, maintained by the primary investigator.

The current data on effectiveness of music therapy with non-speaking clients is largely tied to observed increases in motivation found when working with autistic children. When engaging in music therapy, non-speaking clients often face challenges of being understood, being included, and being respected with dignity. These challenges and biases largely stem from a lack of education on the part of music therapists and other professionals who frequently interact with non-speaking persons. As far as AAC, there is a wide range of device and method types that can be employed in music therapy,

including: high and low tech device options, ASL, and music as a form of

communication. These communication resources can be used to enable more autonomy

and independence among non-speaking individuals, and can prompt a more safe and

equitable therapeutic process by allowing opportunities for non-speaking people to

communicate their preferences, wants, and needs.

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Appendix A

Interview Questions for Music Therapists

Before we get started, I would like to take some time to define a couple terms that I will use during this interview. I will be referring to clients who are unable to consistently express meaningful words without assistance as non-speaking (Villines, 2021). When referring to the term communication, it is used to mean any form of verbal or nonverbal interactions that conveys messages or meanings (Hints, 2013, p. 55). Assistive Communication Devices (ACDs) will be defined as any item, equipment or system used to increase, maintain, or improve the communication capabilities of non-speaking persons (as defined by the Disability Rights of Ohio).

1.   What is your name, pronunciation, and pronouns?

2.   What is your background in music therapy? (education, internship, career/clinical practice)

3.   What is your personal philosophy of music therapy, and why?

4.   What experience do you have working with non-speaking clients? (settings, diagnosis, treatment setting)

5.   Do you have any formal education related to best practices in working with non-speaking clients?

6.   In your practice, what does communication look like between non-speaking clients and therapists, and other group members (in the context of group therapy)?

7.   What vocal experiences, if any, have you used with non-speaking clients? (re-creation, composition, improvisation, etc.)

8.   How were non-speaking people able to participate in these experiences?

9.   What techniques (verbal, gestural, musical) have you used with non-speaking clients in sessions?

10.   What technology are you aware of or currently using in your practice with non-speaking clients?

11.   Considering the social model of disability, were there any other environmental changes you made to increase accessibility when working with non-speaking clients? (interpreters, technology used by music therapists)

12.   How were non-speaking clients able to access this technology? Do they have continued access? (Through therapist request, previously established need, etc.)

13.   What resources would you like to have for supporting your work with non-speaking clients?

14.   What resources do you need, or would be beneficial for you as a music therapist?

Appendix B

Interview Questions for Non-Speaking People

Before we get started, I would like to take some time to define a couple terms that I will

use during this interview. I will be referring to clients who are unable to consistently

express meaningful words without assistance as non-speaking (Villines, 2021). When

referring to the term communication, it is used to mean any form of verbal or nonverbal

interactions that conveys messages or meanings (Hints, 2013, p. 55). Assistive

Communication Devices (ACDs) will be defined as any item, equipment or system used

to increase, maintain, or improve the communication capabilities of non-speaking persons

(as defined by the Disability Rights of Ohio).

1.   What is your name, pronunciation, and pronouns?

2.   How do you identify yourself with regard to your status as being non-speaking?

3.   Do you identify as having a disability or being disabled?

4.   Have you participated in therapies or specifically music therapy before?

5.   If yes - how have you felt your participation was different from your speaking

peers?

6.   What communication technologies, if any, do you use in daily life or therapy?

7.   What did you wish your therapist knew about your _____ (see question 3)?

8.   What are your preferred methods of communication?

9.   What do you feel is the biggest roadblock to your successful participation in

therapy?

10.   Is there anything you would change about how our therapist facilitated therapy or

communicated with you?

11.   Do you perceive your therapy as an accessible resource?

12.   What, if anything, would you change about the therapy environment and accessibility?

13.   If you use assistive communication technology, how do you access this resource(s)?

14.   What resources do you think therapists should have to improve their clinical practice with non-speaking people?