

WITHOUT WORDS: MUSIC AS COMMUNICATION FOR CHILDREN WITH AUTISM

Lindsay Markworth

INTRODUCTION

It has long been realized that music is a universal means of communication. It has been called a non-verbal language. What has yet to be more fully realized is the range of expression that is possible in this 'language.' The variety of human experience that can be communicated through music is highly diversified and virtually unlimited. It is because of this that music becomes vitally important in the work with exceptional children. (Nordoff & Robbins, 1965, p. 41).

Overview

The purpose of this phenomenological study was to develop a deeper understanding of the communicative nature of music in music therapy with children diagnosed with autism. Three Nordoff-Robbins Music Therapists were selected to participate in this study, based on their expertise in a music-centered approach to music therapy. Each participant submitted video-recorded excerpts of session work with one client diagnosed with autism and limited verbal communication skills between the ages 3-6. Data was collected through a structured review of video excerpts and an interview with each participant. The written notes from video review and interview transcriptions were analyzed through a process of coding, and resulted in a list of themes that were consistent among all three participants: music language, musical expression, and music as a shared experience. These themes are illustrated through direct statements from the participants' interviews and music transcriptions from the video-recorded session excerpts.

Researcher's Context

I have been intrigued by the communicative nature of music throughout my training and professional work as a music therapist. In the past five years, I have worked primarily with children and adults with autism, and in many cases these individuals were limited in their ability to communicate. While working with these clients, I have experienced the phenomenon of communicative interactions where music was the primary means for expression. During my career, I have also encountered therapists and teachers who have expressed their challenges in working with people who have such limited ability to communicate. My experiences with music as an effective means of communication with nonverbal children have inspired this research topic.

I have been interested in the Nordoff-Robbins approach to music therapy for several years. I participated in a workshop at the Nordoff-Robbins Center where I was introduced to clinical improvisation. My clinical internship was also based in a music-centered approach to music therapy. As a result, my professional philosophy is rooted in a humanistic approach and the use of clinical improvisation in music therapy. My interest in the Nordoff-Robbins approach to music therapy was influential in choosing to conduct this research at the Nordoff-Robbins Center. Through the process of conducting this research study I was inspired to audition for the Level One Certification Training program at the Nordoff-Robbins Center to further my knowledge of this approach to music therapy. This training began after the completion of the present research study.

I approached this research project with an existing expectation that music can be an effective vehicle for communication, rooted in my personal experiences as a music therapist. This core value was present throughout the research process. However, I did not attempt to prove or disprove the effectiveness of music as a communicative tool. My intention in conducting this research was to gain a deeper understanding of the ways in which nonverbal children were able to use music as a form of communication.

LITERATURE REVIEW

Clinical Population

I chose to focus this study on young children with autism because of the growing need to develop effective therapeutic methods to reach these children. Autism is a pervasive developmental disorder where a child demonstrates impairment in social interaction and communication skills, as well as exhibiting limited areas of interest or repeated behaviors (APA, 2000). The rate of children diagnosed with autism continues to increase. The United States Department of Health and Human Services estimated the prevalence of autism was one in 88 children in 2008. This is a significant increase from the 2000 report, which estimated one in every 150 children in the United States had a diagnosis of autism (2012). This statistic implies a growing prevalence in autism spectrum disorders, combined with refined diagnostic practices. People with autism often struggle with social and communication deficits within the traditional learning environment. This suggests a growing need to explore creative methods for promoting development of these skills.

Music Therapy to Increase Communication with Children with Autism

Considerable research exists in the field of music therapy that addresses the development of communication skills in individuals with autism. Edgerton (1994) found an increase in communicative behaviors of children ages 6-9 diagnosed with autism. These children participated in 10 consecutive weeks of individual music therapy sessions with improvisation as the primary method of intervention. Edgerton documented the clients' behaviors within four musical communicative modalities: tempo, rhythm, structure/form, and pitch. Edgerton identified that tempo was the most effectively used musical communicative modality across all sessions. In this study, the musical communicative modality, tempo, was measured by documenting the client's ability to: 1) beat/vocalize in a steady tempo, 2) match the experimenter's tempo, and 3) beat/vocalize and match tempo variations. Edgerton also identified that the largest communicative gains occurred within the tempo category, indicating the significance of the communicative nature of tempo within musical interactions (Edgerton, 1994).

Clarkson (1994) described the process of developing communication during her music therapy work with Jerry, a high school student diagnosed with autism. Clarkson noted that the initial connection between her and Jerry was rhythmic in nature, as they improvised music within the same beat. In this case description, music improvisation promoted the development of communicative interaction with the therapist, which seemed to support Jerry's developing communication skills outside of the music therapy session. After four years in music therapy, Jerry began using Facilitated Communication, a method of supported written communication (Clarkson, 1994).

In a study with five children with developmental disabilities, Braithwaite and Sigafos (1998) found that children who were described by teachers as passive participants in learning became enthusiastic and actively engaged during music therapy sessions. In addition, three out of five of these children demonstrated an increase in verbal communication when presented with a musical antecedent of rhythm, phrase and melody. It was suggested that the increase in attention and motivation created an opportunity for these children to improve communication skills (Braithwaite and Sigafos, 1998).

Edgerton (1994) demonstrated that improvised music experiences resulted in measurable gains in communicative behaviors with children with autism. Clarkson (1994) described how communication skills increased when Facilitated Communication was integrated into music therapy sessions with a nonverbal high-school student with autism. Braithwaite and Sigafos (1998) suggested that musical antecedents effectively promoted communication responses in some children with developmental disabilities. However, there remains a need for further understanding how music has been so effective in eliciting and encouraging communicative behavior in the context of music therapy.

Eliciting Communication in Music Therapy with Nonverbal Clients

Clinicians in the field of music therapy working with individuals with limited or nonverbal communication often refer to a sense of connecting with a client through the music, an experience that is difficult to quantify. Aigen (2001) described visual and auditory signs of this connection with clients in a study with Lloyd, an adult with a

variety of motor and cognitive disabilities. “Sometimes, the client’s musical responsiveness indicates the presence of the connection; at other times, this connection is inferred through things such as eye contact, facial expression, body posture, breathing or movement” (p. 33).

In addition to establishing a connection with a client, Perry (2003) described the significance of the social nature of improvisation in music therapy to provide a context for the client and therapist to relate within a common experience. Perry found that the development of intentional communication was a significant step in the process of improving communication skills (p. 228).

In another study, Graham (2004) described an example of using improvisation to meet the melodic and musical nature of the client’s crying. Through establishing this connection, the music became interactive rather than an isolated experience. Graham found that nonverbal adults were able to establish communication through a variety of vocal sounds including “roars, screams, grunts, babbles, raspberry noises or clicking with their tongues” (p. 25). Graham used the unique vocal sounds her clients were already creating to establish interaction during the music therapy session.

Within existing research, many similarities are drawn between the wordless communication between mother and infant and interactions between the therapist and nonverbal client. Pavlicevic (2000) states that “music therapy improvisation taps a natural communicative resource: the mechanisms of nonverbal communication” (p. 282). Pavlicevic compared the natural communication that occurs between mother and infant to the similar wordless interactions that are possible within improvised music. The moment-to-moment shifts in tempo, dynamic level, intonation, phrasing, rhythm and melody from both client and therapist suggest a capacity of innate communicative interaction within the music itself.

Shim (2007) explored clinical improvisation with his clients as a means of effectively communicating when struggling with the barrier of English as a second language. Shim emphasized the primary goal of clinical improvisation as that of establishing an interactive relationship through the music, laying a foundation for music dialogue

All of the studies just mentioned (Aigen, 2001; Perry, 2003; Graham, 2004; Pavlicevic, 2000; Shim, 2007) focus on nonverbal communication through improvised music. The results support the idea that music promotes nonverbal connection and communication. Each study also represents a step toward identifying the inherent qualities of music that seem to facilitate these communicative interactions.

Treatment Context: Nordoff-Robbins Music Therapy

It is important to explore the primary concepts of Creative Music Therapy, as all three participants of the present study were experienced Nordoff-Robbins Music Therapists. The video-recorded music therapy session excerpts used in this study reflect the fundamental values of Nordoff-Robbins Music Therapy. The data were collected through the viewing of video-recorded session excerpts and interviews with Nordoff-Robbins Music Therapists.

One of the key concepts in Nordoff-Robbins Music therapy is the *music child*. The music child is defined as “the individualized musicality inborn in every child...the uniquely personal significance of each child’s musical responsiveness” (Nordoff and Robbins, 2007, p. 3). Within this concept is the belief that each child is capable of meaningful interaction and shared experience through music.

The goal of therapy in the Nordoff-Robbins approach is not to normalize the client according to developmental standards within a culture. The aim is to use music to access and develop the strengths within each individual—in a sense, creating the musical environment where a client is intrinsically motivated to engage, interact, learn, grow and develop (Nordoff & Robbins, 1965).

Another concept central to the Nordoff-Robbins Music Therapy approach is the music-centered focus. In this approach, all of the components of music (rhythm, tone, scales, idioms, dynamics, tempo, harmony, melody, etc.) are employed through composition and improvisation to connect with the innate musicality of each unique individual in therapy. At the same time, there is a belief that inherent meaning exists within specific elements of music, such as scales, keys, intervals, and styles. This concept is discussed by Aigen (1998) and referred to as “objectivity of music” (p. 255). Robbins and Robbins (1998) illustrated how Paul Nordoff integrated the theories of Zuckerkandl (1973) and Steiner (1977) while exploring the inherent qualities that exist in the language of music. While consistent connections have been made between music and human experiences (Robbins & Robbins, 1998; Steiner, 1977; Zuckerkandl, 1973), it would be impossible to say these connections are universal with all people. Therefore, it is recognized that “music can have objectivity without universality or singularity” (Aigen, 1998, p. 259).

An important aspect of Nordoff-Robbins Music Therapy is to meet the client through the music. Nordoff and Robbins (2007) describe how music can be used to connect with a child who is anxious, angry, or upset upon entering the new experience of music therapy. “Through improvisation, music can take on powers to calm or console, divert, engage interest, stimulate interaction, release tension, and meet the affective needs of a child” (p. 209). Through creating music to meet the client in his or her current emotional state, a connection is made, and the music then has the potential to inspire change in the client. An immense range of expressive possibilities exists within the qualities of music. “Each child’s music becomes his personal music that is usually born out of the responses and events within the sessions” (Nordoff & Robbins, 1965, p. 46).

In Nordoff-Robbins Music Therapy, the therapeutic relationship is based on an equal partnership of coactive music making. Paul Nordoff said, “You’ll not just pour in therapy to him like spoon-feeding a baby, no indeed. You are making it possible for the child, through his *music child*, to become a co-active therapist with you and together you create the therapy” (Aigen, 1996, p. 25).

This co-active therapeutic relationship is developed through communicative musical interactions between therapist and client. “We can only help children develop relatedness and communicativeness if we creatively offer them someone—ourselves—with whom to relate and communicate” (Aigen, 1996, p. 24). The therapist joins in the musical interaction authentically in order to encourage the client to explore his or her ability to musically communicate. Nordoff and Robbins (2007) compare this process of

developing musical communication to pre-verbal communications between a mother and infant. Even without words, infants are able to babble using different pitches, sounds, and intensity to indicate mood or connect with their mothers. Similarly, the music therapist and client explore the expressive possibilities within the music to communicate and relate to one another.

Music and Emotional Expression

Researchers have looked into the potential for music to communicate and elicit emotional responses. Amir (2005) outlined the possibilities within improvised music for expressing humor. “Humour and improvisation have many elements in common: Spontaneity, playfulness, and surprise to name a few” (Amir 2005, p. 5). Amir described creating these elements of humor through exploring the musical elements of dynamics, tempo, rhythm, dissonances, embellishments, and unexpected intervals and harmony. In this study, Amir described an interaction with Tamara, a nonverbal client, where laughter was elicited through the use of musical humor (2005).

Costa, Bitti, and Bonfiglioli (2000) found that negative emotions were elicited through the use of dissonant chords versus more consonant harmonic sounds in music, among both musicians and non-musicians. They also discovered that the register on the piano seemed to have more of an effect on emotional responses than the quality of the interval itself (p. 16). In addition, they found that scales played in a lower register elicited negative reactions while scales in the higher register were perceived as more neutral.

The effectiveness of emotional communication through improvised music was tested in a study with twenty-one music therapists (Gilboa, Bodner, & Amir, 2006). Researchers investigated the ability of music therapists to convey emotions through creating improvisations and decoding the emotional content of recorded improvisations. Improvised music was found to be a successful means of conveying a variety of emotions. However, questions remained regarding the necessary musical conditions to create an effective environment for emotional expression.

While many researchers have focused on the participants’ perceived emotional responses to music, Lundqvist, Carlson, Hilmersson, and Juslin (2009) investigated whether music elicits authentic emotional reactions from individuals, in addition to the general perception of emotion conveyed through the music. The researchers measured genuine emotion through participants’ self-reporting and facial muscle activity. The study found that music perceived as happy in nature evoked genuine responses of happiness, while music perceived as sad elicited authentic feelings of sadness (p. 73). The study identified consistency between the emotional intention of the musical examples and listeners’ genuine emotional responses to the music.

While Amir (2005) and Lundqvist et al. (2009) identified specific emotional responses to music and others (Costa et al., 2000; Gilboa et al., 2006) have illustrated consistencies between the intended emotional content of music and the listener’s authentic emotional reactions, it remains unclear how these expressive qualities of music are implemented in therapy to facilitate communication with children with autism and limited verbal language. There remains a need for research that connects descriptions of specific clinical musical interactions with the therapist’s reported intention for

communication in order to better understand the phenomenon of communicating through music. Therefore, the present study was guided by the research question, how does music allow for communication with children diagnosed with autism and limited verbal communication? The following sub-questions directed the focus of the present study towards connecting specific clinical music examples with the therapist's verbal interpretation of these communicative interactions.

1. In what ways do children with autism engage in communicative interactions through the music?
2. How does the music therapist use improvised music to invite or elicit communication?
3. What seems to be communicated through the musical interactions?

METHOD

Research Design

The present study was reviewed and approved by the Institutional Review Board at Temple University. The nature of this inquiry lends itself to a phenomenological research design, exploring the meaning of a shared experience or phenomenon among more than one individual (Creswell, 2007). The phenomenon explored in the present study is the experience of music as communication with children with autism.

The present study utilizes a transcendental phenomenological approach (Moustakas, 1994), focusing on the experiences of three Nordoff-Robbins Music Therapists through the process of analyzing video-recorded music therapy session excerpts and in-depth interviews. As the researcher, I articulated my clinical experiences of music as communication in attempt to set aside my existing understanding of the phenomenon. It was my intention to focus on the experiences of the participants, suspending my personal experience (Creswell, 2007).

The present study also employs Moustakas's (1994) methods of data analysis, developing themes through organizing "clusters of meaning" through a process of horizontalization, highlighting significant statements made by the participants during an in-depth interview (Creswell, 2007, p. 61). The themes resulting from this process of data analysis became the structure for the written description of the participants' experience with music as communication with their clients.

Participants

To recruit participants, I submitted a letter to the director of The Nordoff-Robbins Center for Music Therapy, where several experienced Nordoff-Robbins Music Therapists worked. This letter provided a brief explanation of the study and requested the participation of 3-5 music therapists. Three music therapists responded with interest, and each became a participant in the study. Each of the participants met the following criteria: 1) were Board-Certified Music Therapists, 2) had access to archived video-recordings of individual music therapy sessions with children aged 3-18 with autism, and 3) were

certified in Nordoff-Robbins Music Therapy. I obtained written consent from each music therapist. With this consent form, they each agreed to 1) participate in the study, 2) provide video-recordings of their sessions, and 3) to participate in an audio-recorded, hour-long interview. All clients at this music therapy center had existing, signed consent forms, permitting the use of video-recorded music therapy sessions to be used for research and instructional purposes. Pseudonyms were given to both the participating music therapists and the clients in the video-recorded sessions to ensure confidentiality.

Description of Music Therapy Clients

The participating music therapists each identified one music therapy client that met the following criteria: 1) between 3-18 years old, 2) primary diagnosis of autism, 3) presented limitations in verbal communication, and 3) had existing parental consent to allow for video-recordings to be used in research.

Christopher, Mary's client was four years old when he began individual music therapy sessions. He was described as a naturally vocal child, with a rich repertoire of sound-making. Although vocally expressive, Christopher had very few words. He was able to say "mo" for more and was working on saying "bye," but these words required significant prompting. Christopher's mother reported his early development was typical. His language was developing well at an early age, and then he lost these skills after the onset of his autism. Christopher also suffered from colitis, causing abdominal pain. This discomfort would cause Christopher to cry and want to lie on the floor at times during the music therapy session. He underwent steroid treatment for colitis. He was an active child, and often moved in response to the music. At home, Christopher received Applied Behavior Analysis therapy, where music was used as a positive reinforcement.

Neil, Adam's client was three years old when he began individual music therapy sessions. He had a diagnosis of autism, and limited communication skills. Neil had some verbal language, but struggled with expressing his wants and needs with spoken language. He also had a processing delay, which made it difficult for him to engage in verbal conversations with others. He also became obsessed with things and struggled with being flexible with routine.

Alexander, Judy's client was six years old at the time of his individual music therapy sessions. He had a diagnosis of autism. Although he was nonverbal, he used a range of song-like, idiosyncratic vocalizations both in and outside of music. His mother reported that he did not engage in play with other children, but loved music. Alexander was a very energetic, active child, and enjoyed moving and jumping.

Data Collection and Analysis

The method for gathering and analyzing data was inspired by Lee's (2000) method for analyzing music therapy improvisations. Lee's (2000) approach outlines a process of analysis that incorporates the perspectives of multiple listeners (therapist, client and consultant). In the present study, I included the perspectives of the music therapist (participant) and consultant (researcher). The data were gathered and analyzed through five stages, outlined in Table 1.

Table 1
Method for Gathering and Analyzing Data

Stages	Descriptions
Stage 1	<i>Review of Video Recordings</i>
Stage 2	<i>Analysis of Data Gathered from Video Recordings</i>
Stage 3	<i>Interview with Participant (music therapist)</i>
Stage 4	<i>Analysis of Transcribed Interviews</i>
Stage 5	<i>Final Analysis and Synthesis of Information</i>

Stage One: Review of Video Recordings

This initial stage included my process of reviewing the video-recorded session excerpts through listening, writing out music transcriptions, and documenting observations and personal perceptions of the communicative interactions between the client and therapist. These observations were documented in a data table. I created a separate data table for each of the nine session excerpts, with the purpose of marking the time of occurrence within the video excerpt (column one) of each of my observations (column two). See Appendix A: Description of Music Therapy Session Excerpts, for a brief description of the nine video-recorded music therapy session excerpts.

Figure 1 represents an example of the data tables used to organize the data gathered through the first four stages of data gathering and analysis. This example contains data from the first ten seconds of one of the music therapy session excerpts with a therapist and client. The excerpt begins with the client facing the wall in the corner of the music therapy room, gently swaying side to side while holding a maraca. The therapist begins to play the piano, matching the pace of the client's movements. Then the therapist introduces a change by shifting to Spanish idiom, emphasizing the eighth-note subdivisions of 6/8 time. The therapist presents a short melodic motive followed by a pause. In response, the client turns towards the therapist and begins walking around the room to the beat of the eighth notes while shaking his maraca.

Figure 1. Example data table for data collection.

Column 1: Time Marking (seconds)	Column 2: Researcher's Impressions and Observations: Data gathered during Stage One	Column 3: Themes from Researcher's Impressions: Stage Two: Data Analysis	Column 4: Participant's Impressions and Observations: Stage Four: Quotes from the Written Interview Transcriptions	Column 5: Themes from Participant's Impressions: Stage Four: Data Analysis
0	Piano music seems to match client's swaying movement	Interpersonal Relating Through Music	Therapist brought the use of contrast in music to my attention, I had not considered the	Music to communicate invitation

			value of contrasting musical styles	
10	A short melodic motive was presented followed by a short pause in the music- this is when the client seemed to respond and join in the music through his body movements (Measure 5, 6, 7 in transposition)... music leading up to the client joining into the music	Music to communicate invitation	Therapist agreed the use of silence was important, "Phrase and silence. And silence is so important. That invites. If we don't leave a space for the client as much as we are trying desperately, they may not know that we are inviting. So that I think evokes very strongly"	Music to communicate invitation

Stage Two: Analysis of Data Gathered from Video Recordings

Prior to formulating the interview questions for each participant, I reviewed my written documentation and musical transcriptions and identified themes based on my own interpretations as a form of preliminary data analysis. These themes were recorded in column three of the data table (Figure 1). It was important to document my observations of the communicative nature of music prior to being influenced by the opinions of the music therapists during the interview. At the same time, I did not want to lead the participants to answer questions purely to support my own interpretations. Through the process of *bracketing* (Forinash & Grocke, 2005), I focused on suspending my own beliefs and observations about the phenomenon of music communication so that I could be fully open to taking in each participant's authentic perceptions and experiences.

Stage Three: Interview with Participant (Music Therapist)

This stage involved conducting a semi-structured, in-depth interview with each participant, with a focus on gaining descriptive information regarding his/her past experience with music as communication (Marshall & Rossman, 2006). An interview guide approach (Patton, 1987) was used to create a consistent framework across all three interviews while allowing for conversation to evolve naturally with each participant. A list of interview questions was developed and used as a guideline in each interview (see Appendix B: Interview Questions). The same questions were used in each interview; however, the questions were presented with flexibility in order to adapt to the natural flow of conversation with each participant (Forinash & Grocke, 2005).

During each interview, the participant and researcher watched the video-recorded session excerpts together. Additional questions were created that were unique for each participant and excerpt based upon my own preliminary findings, music transcriptions, and emerging themes. The participant had the opportunity to answer these questions,

either supporting or disagreeing with my interpretations of their clinical work. All three participants' interviews were audio-recorded and lasted approximately one hour.

Stage Four: Analysis of the Transcribed Interviews

During this stage, I reviewed the written interview transcripts and highlighted statements related to the communicative interactions through music. Direct quotations from the participating music therapists were documented in Column 4 of the data table (Figure 1) in correlation with specific occurrences in the video-recorded music therapy session excerpts. Then I began the process of analyzing the participants' statements by labeling the documented quotations with a theme. The emerging themes were documented in Column 5 of the data table (Figure 1) next to the corresponding quotation. After the data from the interviews were integrated into the data table, it was possible to compare the similarities and differences between the themes that emerged from the researcher's observations and the participant's observations.

Stage Five: Final Analysis and Synthesis of Information

The final stage of analysis involved compiling a master list of themes, including data from all nine data tables (columns 3 and 5). Once this comprehensive list was created, I began the process of synthesizing these data into categories, with respect to the complexity of the present research question: how does music allow for communication with children diagnosed with autism and limited verbal communication?

Trustworthiness

Trustworthiness was established throughout the design of this study. First, there were multiple sources of data for this study, including video-recorded excerpts from music therapy sessions as well as an interview with the participating music therapists. I viewed the recordings in a recursive approach, allowing time to pause and take detailed notes, and replay sections of the excerpts several times in order to become familiar with the techniques used by the music therapists. This persistent observation produced in-depth notes, descriptions of musical interactions, and musical transcriptions.

Multiple perspectives were included in the data collection process. First, I documented my own perspective through note taking while reviewing the recordings. I also documented the perspective of each participating music therapist through transcribing the audio-recorded interviews. I also used the procedure of participant checking, allowing each of the participants the opportunity to review the results of this study and to make suggestions for revisions to clarify comments they made during the interview (Creswell, 2007).

RESULTS

Categories of Music Communication

Two lenses emerged from the comprehensive list of themes of music communication 1) Method of Music Communication and 2) Meaning of Music Communication. The first lens, Method of Music Communication, included data that described how specific music techniques were used communicatively. This lens included examples of how rhythm, tones, and expressive elements (e.g., dynamics, timbre, touch, and tempo) were employed in communicative interactions between therapist and client. The second lens, Meaning of Music Communication, included themes from the data that described the content of what the music therapist had intended to communicate through the music.

As I began separating themes into categories of music techniques and content of communication, the data began to lose meaning. The result was two lists, 1) musical terms and techniques and 2) words that described the content of communication. It quickly became clear that it was necessary to integrate the two lenses—Method of Music Communication and Meaning of Music Communication—to preserve the contextual meaning of the data.

I returned to the raw data and reexamined the original list of themes. Through this process of coding, three new categories of music communication emerged: 1) Music Language, 2) Musical Expression, and 3) Music as Shared Experience.

Within Music Language, four subcategories emerged: 1) Musical Statements, 2) Suggesting Musical Direction, 3) Musical Questions, and 4) Musical Conversations. Within Musical Expression, three subcategories emerged: 1) Self-Expression, 2) Discovery of Creative Freedom, and 3) Expression of Emotions. Within Music as Shared Experience, two subcategories emerged: 1) Client's Recognition and 2) Therapist's Recognition. These categories and subcategories are listed in Table 2: Categories of Themes of Music as Communication.

Table 2

Categories of Themes of Music as Communication

- 1) Music Language
 - a) Musical Statements
 - b) Suggesting Musical Direction
 - c) Musical Questions
 - d) Musical Conversations

- 2) Musical Expression
 - a) Self-Expression
 - b) Discovery of Creative Freedom
 - c) Expression of Emotions

- 3) Music as Shared Experience
 - a) Client's Recognition
 - b) Therapist's Recognition

Interrelation of Categories

Each lens, *Meaning* and *Method*, provides an essential component to understanding the phenomenon of communicating in music. It is important to look at the themes through both lenses, integrating specific examples of how the music therapists used rhythm, tone, and expressive elements (e.g., dynamics, touch, timbre, and tempo) to communicate intentionally with the client. Method and Meaning will be integrated in the results section, where specific examples from the data illustrate how the music was used (method) to communicate with intention (meaning).

Similarly, the three primary themes: *music language*, *music expression*, and *music as a shared experience*, are presented separately; however, these experiences are not mutually exclusive. The development of the music language was only possible because of the unique self-expressions from both therapist and client. Similarly, these self-expressions were only possible because of the developing therapeutic relationship communicated through a shared experience in music. Just as it was impossible to separate the method from the meaning of the communicative nature of music, it would be difficult to claim the themes of music language, music expression, and music as a shared experience were independent phenomenon. So, although presented separately, it is important to acknowledge the interrelatedness of each of these themes of music as communication.

Music as Communication

The following theoretical postulates were developed through the process of data analysis and evolved directly from the identified themes and subcategories. Below each postulate, the related themes and subcategories are described; examples from the raw data further illustrate the text.

I. Music is a unique language spoken between two individuals in music. This is a language learned and developed within each unique relationship between therapist and client in music therapy.

The unique language of music involves making musical statements, suggesting musical direction, asking musical questions and engaging in musical conversations. Each of these subcategories will illustrate a different aspect of the process of creating a unique musical language between each therapist and client. These aspects of music language are presented separately; however, they are interrelated. Two different types of music language often occurred within one musical interaction. For example, a musical question was often answered with a musical statement. Consecutive interactions of musical questions and musical statements evolved into musical conversations. Just as verbal language contains different types of communication, the data seemed to present parallel forms of communication within the music.

Musical statements

Through the process of developing a music language, therapist and client use the music to make statements to share ideas and to communicate validation. One method of sharing original ideas through music began between Adam (therapist) and Neil (client). The musical interaction began with Neil imitating Adam's short rhythmic ideas. Then, following a pause, Neil played a new rhythm and looked at Adam, who responded by imitating Neil. Neil was developing his music language, his ability to make his own unique statements. Adam said, "For him (Neil) to listen to what I was doing and then take up his own idea was like him saying 'oh, I can do this too.' So it was taking a concept and making it his own." Once Neil began initiating his own musical statements, Adam began validating these experiences through a musical response. Adam shares how he used pauses in the music to communicate to Neil that he was waiting for him to musically say something on the cymbal. When Neil crashed the cymbal to fill the silence, Adam validated this statement with a loud chord on the piano.

He (Neil) can see that I am waiting for him and he is taking it up and enjoying the fact that I am going to respond to what he does. He has some control over what I do. And it is shared, he's not just following me, but I'm following him. (Adam)

Another example of musical validation through reflection of musical ideas was observed between Mary (therapist) and Christopher (client). This interaction also began with the client imitating the therapist.

We don't just want him to imitate. We want him to be expressive and be his creative self. So there were times when he varied the melodic phrase and I imitated him. This felt really significant because *he* was creating. He was initiating ideas. (Mary)

This is an important point about the limitations of one-way imitation in music language. If the interaction never goes beyond the client imitating the therapist's musical ideas, this would be similar to echolalia in verbal communication. However, when the client is able to initiate musical ideas, then the music language can become more purposeful and interactive.

Mary described a moment during a piano improvisation when Christopher presented a new syncopated rhythm, which Mary reflected. Upon hearing his idea incorporated into the improvisation, Christopher looked up at Mary and smiled. This is an example of Christopher's external recognition of being validated through music. Mary said, "He feels met somehow in the music. He feels understood in the music, and then he turns to the person." The musical transcription shown in Figure 2 shows how Mary was able to reflect Christopher's rhythmic idea while incorporating different tones so that her musical response was not an exact mirror of what he played. This incorporating of ideas while adding one's own creative expression seemed to be a significant element of making individualized musical statements. These interactions are more than just repeating back

what a person says to you in the music. They involve adding one's own creativity to the musical interaction.

Figure 2. Mary communicates validation through rhythmic imitation.



Another method for using music to communicate validation is through incorporating the musical sounds a client creates into the improvisation. Alexander (client) expressed himself with song-like vocalizations, both inside and outside of the music therapy session. Judy (therapist) described her intention of using music to validate Alexander's vocalizations by incorporating them into the improvisations.

When he made his sounds I would try to let him know that I was hearing him and understanding him and trying to gain some responsiveness, so that it wasn't just the sounds that he would make whether I was in the room or not. (Judy)

When incorporating these vocalizations, Judy mentioned the importance of not directly imitating the sounds, but taking his ideas and integrating them into her own musical ideas. She said, "I didn't want him to feel like I was chasing him, but I wanted him to feel understood, that I could speak his language." It is important to not just imitate, but to incorporate ideas, expand upon them and integrate them into the musical dialogue.

Suggesting Musical Direction

Through the process of developing a musical language between client and therapist, the music is used to assertively communicate preferences of where the music should go. Within this theme, it is important to consider the balance between following and leading as well as inviting and directing. The therapist may take on a leadership role by presenting the client with a clear invitation to join in the music. However, the leadership role may soon transfer to the client if he or she chooses to ignore the invitation and present his or her own idea instead. The therapists in this study demonstrate this balancing act of suggesting a direction in the music to challenge the client to grow, and validating the client's response.

The therapists in this study used the music to communicate invitation for the client to join in the music experience. For example, Mary discussed the importance of silence to communicate invitation in music; "silence is so important. If we don't leave a space for the client as much as we are trying desperately, they may not know that we are inviting."

In addition, Mary played clear rhythmic phrases prior to these pauses to communicate invitation. “Play with me” is what I’m trying to emphasize through the music with intentional communication.” This rhythmic motif was played using dissonant chords, a firm volume, and accented beats, as shown in Figure 3. These musical elements all supported the firm directive to Christopher to join in playing, followed by a pause in the music where he could reply.

Figure 3. Mary communicates an invitation, “play with me.”



Another element used when communicating an invitation was melodic contour. Mary said, “I am thinking about direction in a melody. Where I am ending my phrase, and how I can keep it open and give him the message, ‘come on, I want you to join me.’” The direction of melody can be extremely important when trying to invite, perhaps similar to the inflection used when asking a question in verbal language. When keeping the direction of the melody building upwards, there seems to be an implied need for a response.

When attempting to invite someone to join a conversation in verbal language, one may introduce topics of potential interest to the listener. Similarly in a music language, if one musical style does not seem to be of interest to the client, the therapist may introduce a change with the intention of captivating the interest and extending invitation to join in the musical interaction.

So you are making me think of another element, contrast. I was playing something before, you didn’t get to hear what that was because this is an excerpt, but I obviously introduced this change and that can be very engaging. (Mary)

In this excerpt, Mary successfully invited Christopher to join in the musical interaction by initiating a change in style of music. Christopher seemed to immediately connect with this new style, in Spanish idiom, and indicated this connection by moving his body to the beat of the music.

Another use of music language to encourage a sustained musical interaction is the use of tonal relationships that avoid resolution. Adam introduced a harmonic progression based on tritone relationships, moving from chord to chord without resolving while Neil played the cymbal.

It was a tritone relationship so Db with flatted fifth and then I'd go to a G with a flatted fifth, so the relationship between those chords was a tritone, but also within those chords was a tritone. It was very unstable and it would go from one to the other, but it wasn't a progression to the tonic. (Adam)

By avoiding harmonic resolution, the music itself encourages the interaction to continue.

Just as the therapists were able to musically encourage the clients to continue playing, they were able to communicate that it was time to end a musical interaction. For example, Mary described how she used closed cadences to indicate the end of the music conversation.

It doesn't always have to, but it's a phrase calling out for a response, if everything stops, if the melody ends on the tonic, some children who are very sensitive, they put the drumsticks down and then they walk away because it sounds like an ending to them. (Mary)

Adam described Neil's understanding of their music language as he could hear when phrases were going to end and when they were going to continue based on the chord progressions. "There were a lot of sequences that he could understand, so I could leave a space for him to play a punctuation, or for him to anticipate where I might end a phrase or begin a phrase." Just as avoiding resolution in music encourages a client to sustain participation, the use of clear, closed cadences such as the dominant seventh to the tonic communicates the ending.

It is also possible to use the music to make statements about *musical preferences*. For example, Judy described the musical interactions during an improvisation directed by Alexander. Alexander had clear preferences in relation to register, tempo and length of phrases and was able to communicate this to Judy through the musical interaction.

I think he really is stepping into my world here, and telling me what he wants. He is able to communicate with me what kind of music he wants. He is dictating the register, the tempo, and he is moving my hands. He is really saying, 'I know what I want and I'll show you how to play it.' (Judy)

The actual communication of Alexander's preferences was through gestures and body language rather than in the music itself. However, it was the musical interaction that provided the context for Alexander to so clearly articulate his ideas and preferences.

It was clearly meaningful to him. It was important to him. The why, I don't know and maybe it doesn't even matter. But the fact was he wanted to communicate this and he knew he could let me know. (Judy)

This example involved communication primarily through gestures. However, Alexander also used the music to indicate preferences. For example, during one excerpt,

Judy began playing guitar, introducing a slow tempo. Alexander responded by vocalizing in a high-pitched, fast tempo. Judy responded to this by increasing the tempo of her guitar playing to match the energy he presented.

He vocalized in a faster tempo. It was his energy. I felt like my energy was not matching him. It was as if he said, 'No, I want it to go faster! I have more energy. I want it to be a little livelier.' That's what I imagine he was thinking. (Judy)

Alexander was able to make this request for tempo without using words, body movements or gestures. By introducing the quicker-paced vocalization he clearly requested for Judy to pick up the tempo.

Musical Questions

An important component of music language, just as in spoken language, is the ability to ask something of another individual, through presenting a challenge or a more direct inquiry. The music language was used to challenge the client, as if to say, "Can you play this?" This was a way to initiate more in-depth musical interactions.

For example, Adam discussed how he presented challenges through the music to Neil. Within the context of the musical interaction, Neil was open to responding to these challenges. This contrasted with Neil's difficulty accepting challenges outside of the music environment.

I think he knew he was good at this and he liked the fact that he was being challenged, playing this rhythm or that rhythm, playing loud and soft, he really was very willing to engage in something that was challenging in the music, and I don't think it was like that outside of the music. (Adam)

Adam explained how Neil seemed to quickly develop an understanding of the communicative elements of music. Therefore, the unique music language between Adam and Neil continued to evolve through introducing ambiguous, dissonant, unpredictable tones and patterns.

So once it was clear that he could hear cadences and tonal relationships, and knew when pieces were ending, if I created more ambiguity in the music, it would almost force him to pay closer attention and live in that kind of unknown place. Can we stay in this feeling of creating something where it is not so clear? (Adam)

Through these interactions of challenging each other through the music, the music language evolved from basic statements with responses to more a more uncertain exploration within the musical conversation.

The music was also used to ask questions with a direct answer. In these interactions, either the therapist or client would pose a musical question, followed by an

answer from the partner in the musical interaction. Several different musical methods were used to ask a question.

For example, Mary talked about leaving the phrase unresolved, indicating the need for a response. “Keeping the action, the music suspended with a sense of needing it to go on facilitates asking something of the person you are with.” Christopher demonstrated his understanding of these musical questions by consistently responding with a musical reply.

I discovered that he could respond to a short phrase with a rest. It was a sound that seemed as if he was answering a question. It had to be evoked through the music. Sometimes it was just sort of a joyful letting out of sound. Sometimes it was reciprocal, I said something and he answered.
(Mary)

Christopher’s responses to musical questions were generally short, as if replying with a simple yes/no. Often Christopher would respond with a vocalization of “whoa,” resolving the suspended phrase on tonic. The fact that Christopher’s responses so often corresponded with the tonality of the musical question supported this idea that he was answering the direct musical question.

The music was also used to ask “what next?” For example, the music language developed by Neil and Adam involved extended pauses where eye contact was established. These silences created a suspenseful atmosphere and became an important communication of asking each other, “what next?” Then either Adam or Neil would provide the answer to this question when the silence was interrupted with a (usually loud) musical response.

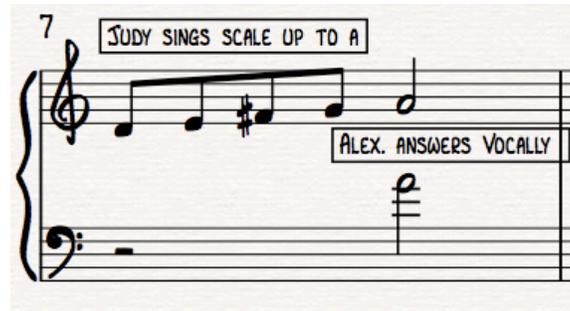
He was enjoying the feeling of being in control in the music; being responded to, that there was anticipation of what was going to happen next. He was not only thinking in the moment but he was wondering what was going to happen. It was very playful; there was a lot of happy giggling, fun in the early sessions. (Adam)

Judy used another musical method that communicated a question of “what next?” She introduced a scale fragment using tones from tonic to dominant in an upward motion to communicate openness to Alexander’s musical ideas.

I don’t know that I was thinking of a question so much as it is just really open, it’s like going up and “where next?” You are up and it sort of opens things up to whatever is going to happen next... I felt the openness of that melodic line, that bit of a scale. It’s not finished yet. It certainly has direction, and I felt his direction was usually up, his vocalizing really tended to go quite high at times. (Judy)

Judy’s use of a major scale, shown in Figure 4, was effective in evoking a response from Alexander, demonstrated through his vocalizations around the dominant tone.

Figure 4. Judy asks “where next?”



Musical Conversations

Through the process of developing a mutual musical language, the communicative interactions became more complex including more interactive creative responses. These aspects of the music language seemed to be more of a conversation than isolated statements or questions.

Mary described the musical interaction with Christopher when his responses became more conversational, beyond question and answer. Christopher began to go beyond imitation and call and response by initiating his own musical ideas and extending phrases.

It was really exciting to have him answer so closely, he's having a conversation, and then at some point he's initiating it, when he made his melody up. So, he moved from 'who' to two note phrases, three note phrases, long held tones. So his engagement seems to be deepening and lengthening. You could quantitatively show the difference there. (Mary)

Here Christopher was not only responding with his own unique musical statements, his contributions became longer in duration as he explored a greater variety of vocal sounds. Mary no longer had to directly invite him to make a musical statement. He was initiating these statements with more freedom.

Neil was also able to engage in music conversations. He shared and initiated his original ideas starting in the first session.

I think there was a certain natural way that he understood the language of music in a way that was a lot easier than verbal language. So he understood the construction of the scales, he could hear going to the tonic. He knew how notes worked together. He understood how a phrase would come to a close or a cadence. He could hear those things. And I think it was allowing for some strength that was in there lying dormant to really manifest itself. (Adam)

Another style of a conversational dialogue was between Judy and Alexander. This interaction was a musical debate, as they seemingly discussed the style of music to use in the improvisation. Judy described the musical interaction with Alexander when he was directing this musical interaction. He was communicating his musical preferences and ideas through moving her arms to the beat, and physically redirected her when she tried something different. Alexander seemed invested in this musical interaction. It appeared as though he knew what he wanted in the music and was not open to Judy's input. This non-verbal, musical interaction unfolded in a way that was representative of a verbal argument or debate.

Yeah, I think that it was a debate. I would throw in another idea and he would reject it. Very strong willed. I would ask through the music, "how about this?" or "could we do this too?" He would respond (in the music) "no. no. I want this, this is it, this is what I want. You do it, I'll show you how. (Judy)

II. Music can be used to express an individual's identity, emotions, and creative freedom. In addition, music can be used to validate these expressions of a person's inner being.

Musical expression encompasses using music to communicate self-expressions, discovery of creative freedom, and expression of emotions. These three subcategories are presented individually to highlight the distinction between using the music to express emotions versus expressing aspects of one's self. In addition, each therapist and client went through a process of developing creative freedom. As the music language and therapeutic relationship evolved, each client seemed to broaden his range of expression.

Expression of Self

Each therapist expressed his/her intentional use of musical style to meet and validate the client's unique expression of self. The music was improvised in the moment to illuminate the personality of each client, and these musical ideas often developed into reoccurring themes in therapy. For example, Judy chose to use Dorian mode in her work with Alexander.

I like Dorian because it is the mix of the major and minor feel. It's got the drive of the minor, but it is not oppressive in any way. It has the major four chord that lightens it. So it is kind of a mixture of lightness and strength, which I felt suited him too because he was very bird-like in his vocalizations. They were so light. But then he was playing the drum with a lot of strength at the same time. So he is a mixture of light and drive, strong energy. So I think the music fit that part of him. (Judy)

Judy observed Alexander's strength, confidence, and playfulness early in their developing relationship. Her decision to improvise music in Dorian was a reflection of his personality traits. In this way, the developing music language between Alexander and

Judy was based on the validation of Alexander's identity. Judy explained the purpose of this initial theme in Dorian, "It's almost like an introduction, 'here we are' this is the beginning of something."

Judy used another musical method to further reflect the energy Alexander presented in the first session. "There is something about the liveliness of it that I felt he was a very lively energetic child, so that rhythmic pattern seemed to fit him." Judy introduced a rhythm, shown in figure 5, reflecting Alexander's energetic body movements.

Figure 5. Judy reflects Alexander's energy.



Adam provided another example of the use of a mode to reflect the client's personality.

The theme I used a lot was in Mixolydian, and I think there was something about Mixolydian that I felt was right for him. It is very strong and concrete major sound, but something about the flatted 7th. It is good driving music for the drum. (Adam)

Neil inspired Adam's decision to use Mixolydian mode through his playful presence. Adam was able to use the music to communicate to Neil that he understood this aspect of his personality, and that it was okay to be playful in the music. The result of clearly communicating an acceptance of Neil's playful personality was the development of trust, and the beginning of a therapeutic relationship. Adam said, "I think the playfulness was important, to be authentically playful, to bring that out and I think he felt that and I think that was the key in making a connection."

Mary also provided an example about how she made the decision to play in a specific style as a reflection of an aspect of Christopher's personality.

I was definitely thinking about minor. The drama of minor for him, that side of him that is serious and intense and pent-up maybe. He leads a frustrating life. It was purposeful to sound minor. (Mary)

While accepting this serious side of Christopher's personality, she simultaneously communicated that it was okay for him to express these frustrations, this intensity of self that may not be accepted in other environments. She said, "If I was sensitive to the different sides of him and I could bring that out in the music, it could pull forth that side of him. There was a more serious, kind of rhythmic intensity, something purposeful. There is another side to this child besides, the highs of 'this is fun.'" An example of how Christopher expressed this intensity through the music was found in his piano

improvisations. Christopher began playing with two fingers, and gradually increased intensity until he was playing with two open hands, creating loud tone clusters. Mary supported this release of energy through her accompaniment on the piano.

Discovery of Creative Freedom

Developing a range of expression in music seems to be a process that evolves over time. It is necessary for a client to first develop an individualized music language as well experience trust within the therapeutic relationship before he or she is able to freely initiate ideas, take risks, and broaden vocal and instrumental expressions. In the beginning stage of therapy, the client's music may seem rigid or limited in expressive range. It then becomes important for the therapist to communicate acceptance of the client's music while simultaneously encouraging them to move towards increased freedom of musical expression.

Adam explained how he challenged Neil to develop flexibility in his musical expression by providing a variety of musical contexts around Neil's preferred instrument, the cymbal.

He wanted to play with the cymbal all the time and I tried to make it flexible, not just the same thing all the time. So even though he was staying with something that he wanted, it was still meaningful and communicative because I was trying to do things that moved beyond the repetition of something. (Adam)

Through this interaction, Adam demonstrated some possibilities for broadening musical expression by creating a variety of musical contexts for Neil's habitual cymbal playing. Adam said, "I think I'm also trying to say, there are all these different ways we can play together. It doesn't have to be the same all the time. Can you allow yourself to be free and open to trying something new that you have not done before?"

Similarly, Judy described the importance of introducing a variety of instruments to Alexander in order to broaden his creative freedom within the context of their music language. Judy said, "we got him to broaden his pallet so to speak, to use instruments somewhat and to make sounds that seemed to be much more communicative." Through incorporating a variety of instruments into the session, Judy seemed to communicate to Alexander there are many possibilities for expression. His ability to create music on a greater variety of instruments seemed to broaden his music vocabulary.

In addition, Judy created music with the intention of encouraging Alexander to develop an increased freedom of expression. Judy explained how sometimes the primary role of the accompaniment was to provide a sense of grounding through creating a tonal center, allowing for creative freedom of vocalizations. She said, "I think the music was just the backdrop for the vocalizing, and the vocals were primary. It gave a tonal focus to work around." Here the accompaniment was intentionally simple, and open, leaving room for creative expression.

Mary shared a similar example where she used the guitar to provide a simple container to support a musical conversation with Christopher. This guitar accompaniment provided space for Christopher to explore his creative vocalizations.

I'm struck by the guitar here, the use of bass with the root and the fifth. Something about that is making him feel like he can improvise on top of the accompaniment or sing on it. It is predictable and grounding. I am singing over it to kind of imply other harmonies. I don't want to just sing the root/fifth, but I think there is something effective about the accompaniment. (Mary)

Adam described another example of how he musically communicated encouragement for Neil to explore creative freedom. While improvising with a steady beat, Adam strategically placed rests in the music and Neil was able to continue playing through the rests. This demonstrated Neil's increased sense of independence and ability to follow through with his own musical idea.

Could he play through rests? It was overlapping. It was not just 'imitate this pattern,' but one pattern would start while one was finishing. So, he could feel the pulse when I was not playing and he could continue so he's not just copying and how am I placing the music within his playing. (Adam)

While earlier in the therapeutic process, rests were used to communicate invitation, now the absence of Adam's playing highlights Neil's developing creative freedom and independence.

Expression of Emotions

Each of the participants in this study acknowledged the risk of error involved in interpreting another human being's emotions. For the purpose of this study, the therapists were asked to provide their own interpretations of the emotional content of the musical interactions, keeping in mind that the exact interpretation was secondary to the therapist's musical communication of validating these emotional expressions.

An example of an interpretation of emotional expression through music was Alexander's expression of joy through his musical contributions and body movements. Judy said, "I felt that he was very happy. I wanted to let him express his joy and whatever feelings he had." Some of Judy's musical techniques seemed to mirror Alexander's joyful musical expressions, including a shuffle rhythm (Figure 4), fast rhythmic pulse, and the use of high-pitched instruments.

Adam described the use of specific musical techniques to tease, joke and musically laugh with Neil. These playful musical interactions were accompanied by smiles and laughter from both Adam and Neil, supporting the interpretation of these musical expressions as expressions of humor and happiness. One technique Adam used

was the chromatic scale starting in the lowest register on piano and building to the upper register, as shown in Figure 6.

Figure 6. Adam musically jokes with Neil.

The image shows a musical score for two staves. The top staff is in treble clef and contains a chromatic scale starting on a low note and moving up step-by-step. A text box above the first few notes reads "Adam introduces chromatic scale pattern". The bottom staff is in bass clef and contains a series of eighth notes, representing drumming. A text box above the middle of this staff reads "Neil continues his drumming faster and faster...". The drumming pattern consists of a steady eighth-note rhythm that gradually increases in speed across the four measures shown.

He said, “those little half steps almost sound like tickling I think, so this is one of the things that I would do concretely.” In addition to the use of chromatic melody, Adam explored the use of crescendo and accelerando to convey playfulness in the music.

There is something about the dynamics building and abruptly stopping. It is almost like you are tickling them. You are doing a teasing thing that you are both laughing about. I would compare it to something like the mother doing a peek-a-boo, and knowing that we are both anticipating and doing it together. (Adam)

Adam also made choices of harmony to convey humor in the music. He said, “ending the phrase but not ending on the tonic.” A final thought on how he reflected humor in the music was through the use of light touch on the piano. He said, “there was a certain lightness or quickness in the music that I think conveyed a playful attitude”

Although many of the musical interactions between Adam and Neil were playful in nature, Adam expressed how there was a more serious side to Neil’s personality. Neil seemed to develop a sense of power and confidence through these musical interactions. Adam used the music to reflect this side of Neil’s emotional expression as well.

So it had a kind of regal, parallel motion of fifths. There is power in that and I think he felt the power, it was empowering, but I think he, in music, felt powerful. He would run in and play, so there was something about the moving, and voicing of the fifths that encapsulated his feeling of being powerful. (Adam)

Mary observed an array of emotional expression from Christopher’s playing as well. While playing the piano, Christopher used a range of volume, from playing with one finger to both hands on the keyboard. She said, “he needs a concert grand, it’s just not enough for the intensity he wants to play.” It would be impossible to know what emotions exist within Christopher’s intensity, but within the musical interaction, Mary was able to meet his volume, dissonance, and fast rhythms. Through this expression of musical validation, she could express to Christopher that she heard him, and it was okay to express himself in that level of intensity within the music.

We are speaking the language of music. We are speaking this language together. This approach, and music in general in music therapy, gives him an alternate way to communicate his self. In all the different moods and feelings he has. I think that's why it is so powerful for him. (Mary)

This is an example of the power of music to give voice to the expression of emotions, to contain these emotions, and to let someone know they have been heard and understood. It seems as though it is unnecessary to identify the exact emotion for this powerful interaction to occur in a meaningful way.

III. The collaborative music experience cultivates a strong interpersonal relationship between therapist and client. Through the development of the shared music language and the expression and validation of self, a sense of "we are in this together" is mutually communicated and expressed through the music.

Music allowed for the client and therapist to communicate an acknowledgement of mutuality in the shared experience of developing an individualized music language. Within all three client-therapist relationships, it was clear that each person demonstrated recognition of the experience of being in the music together.

Client Recognition of Shared Experience

There are several ways the clients within this study seemed to communicate their understanding of the shared music experience. One observable example is when the client vocalized or sang using tones that reflected the tonality presented by the therapist.

For example, Judy described how Alexander altered the tones of his vocalizations to match the tonal center she presented. Alexander's ability to alter his vocalizations demonstrated his awareness of the co-active nature of the music interaction, and implied a desire to be in the music together. Judy said, "they (his vocalizations) were tonal, he sang tonic and he was definitely in the tonality. I don't think I chose the key based on his vocalization, I think I was in Dorian. And I think he accommodated."

Sharing the music does not simply mean changing what you are doing to match the other person's music. It is important to for the client and therapist to create music authentically in addition to meeting in the music.

So I see him as being curious and responsive. Doing his own thing, but at the same time incorporating what he brings and what I bring together in this very first meeting. I felt we were communicating in those moments. (Judy)

Here, Judy described how Alexander presented his vocalizations during their first session. He shared his authentic vocal sounds, bringing his existing vocal abilities to the session. However, he demonstrated that he understood the partnership in this musical interaction by altering the tones he sang to match the music Judy presented. In this way, the shared

experience required both client and therapist to balance listening and responding to one another.

Christopher also communicated his understanding of the shared music experience through altering his vocalizations and body movements to match the rhythms and tones presented by Mary. In the beginning of one of the session excerpts, Mary presented a clear motif in Spanish idiom, with a strong rhythmic pulse in 6/8 meter. Christopher responded by first swaying on beats one and four. He then began subdividing the beats by marching to the eighth notes. After Mary vocalized, Christopher responded with a vocalization not only matching the tonality, but also reflecting the Spanish style.

We saw him in the tempo, subdividing the tempo, and then the 'yayayaya'. He was right in the tempo with his singing. His music was so related. Brief as it could be, you could see and hear that. (Mary)

Through this brief interaction, Christopher seemed to express to Mary that he heard the music she was playing, that he understood this was a partnership.

A different example of how the client may communicate recognition of the co-active music relationship is through mutual recognition of reoccurring themes. Neil was able to follow musical cues, altering the instrument he played on and his style of playing in direct response to various themes presented by Adam. He was really listening to what was happening in the music. For example, each time Adam returned to the theme in Mixolydian, "Music Time for Neil," Neil returned to the snare drum and matched the steady beat. Then Adam would introduce a new theme that called for a crash on the cymbal, and Neil followed, without any lyrical or verbal direction.

We come back and play something that is really solid (Music Time for Neil theme). So it was alternating between really exploring improvisationally, taking the music out to unknown directions, and then coming back to something very solid, very predictable, and he was able to do that. (Adam)

Neil's ability to follow Adam's shift from stable themes to unpredictable improvising indicates his awareness of the shared responsibility in the music they created. He developed a keen awareness of these musical interactions, and followed them closely as they explored their own musical world.

Therapist Recognition of Shared Experience

This category describes the therapists' perspective of co-actively creating music with a client. Judy described how communicating recognition of this mutuality goes beyond a concise translation into words; it is more of an expression of togetherness.

It is not so much specific content as it is an emotional world, really. That we are friends, we are here together, we can share on an equal basis, the

meeting of the minds. We are equals in this music situation. We can play together, we can sing. (Judy)

Just as Judy described here, each of the participants shared a similar intention of musically communicating genuine appreciation of the experience of being in music with the client.

Judy acknowledged that Alexander's unique vocalizations as an important contribution to the music they created together.

He had his own way of communicating, his own language, his own sound system, his own way of being, his own very quirky and unique responses to his world. And I saw my job was to try to find a way in and to connect with him, to find some meaning. Not to pull him into my world as much, but just to find a meeting point where we could share something together. Share something meaningful together. (Judy)

For Judy, it was important to incorporate the vocal sounds Alexander presented in the music therapy session as a way of communicating that he could influence the direction of the music, that this was an equal partnership.

At times this mutual understanding of the shared experience made it difficult to know who was leading and who was following. Mary provided an example of the partnership that developed with Christopher. She said, "Here I was accompanying, it's a two-way partnership. So I started, and he joined, and now I'm playing to his moving and he is moving to my playing." Through the shared experience in music, there is this give and take. It becomes less important who is the leader and more important to communicate the mutuality.

There is an emphasis on developing a relationship through the process of sharing ideas and getting to know one another's music language. Adam shared his intention to communicate this invitation of a musical relationship through sharing humor and playful interactions. He summarized what he intended to communicate to Neil, "Isn't it fun to be together, isn't it fun to share in something? Keep listening because who knows what will happen next! I think that I'm trying to communicate that we can have fun and be playful and do it together."

DISCUSSION

Common Experiences Within the Communicative World of Music

Within the process of establishing a mutually understood music language, several themes were consistent across all three of the participants. First, each therapist and client developed a method for creating and responding to musical statements within each individualized music language. In the beginning, each therapist seemed to encourage original, creative musical statements from the client through validating these responses and incorporating the client's musical ideas into the improvisation. This focus on establishing a connection with the client through giving meaning to all forms of

expression, vocal, instrumental, movement, and body language is congruent with existing research (Aigen, 2001; Graham, 2004; Perry, 2003).

The development of each individualized music language evolved over the course of time. Each therapist and client seemed to develop an increased understanding of his/her developing music language through each improvisation and musical interaction. This process took place over different lengths of time for each client. However, there was a parallel progression within this development for each of the clients. The music language seemed to begin with more basic musical interactions such as a musical question followed by a short answer. The therapist often used the techniques of imitation and reflection to communicate validation of the client's responses more frequently early in the development of the music language. Each client was able to build upon this basic music language and, over time engaged in more complex, conversational musical interactions with the therapist. It is interesting that each client seemed to have an innate sensitivity to the communicative nature of music, illustrating the concept of the *music child*, (Nordoff and Robbins, 2007). Through this process of creating music with the therapist, the music became increasingly more communicative, expressive and interactive.

Each of the music therapist-client roles alternated frequently from leader to follower throughout the improvised musical interactions. Aigen (1996) wrote, "the clinical intervention through music does not have to be either challenging or supporting, inviting or demanding, leading or following; it can simultaneously offer all of these things" (p. 18). The process of developing a unique music language was a result of this kind of shared leadership. At times the therapist followed the client's musical statements, and other times the therapist initiated a musical statement that required the client's response. It is important to note that for each therapist-client pair, the process of developing a music language evolved through shared leadership.

Another consistency between each of the participants was the intentional selection of musical styles to reflect the personality traits conveyed by the client. This method of validating the client's expression of self was not identified until I conducted the interviews with the therapists. As an outside observer, it did not occur to me that the choice for the tones, harmony, and scales were so thoughtfully selected with the intention of reflecting the client's way of being. However, this was an important method used by each of the therapists in the study, and seemed to play an important role in communicating validation, acceptance, and partnership.

In addition to validating the client's expression of self, each therapist musically encouraged his or her client to develop freedom of expression in the music. Perhaps it was the consistent validation and acceptance of the client's music that contributed to creating an environment where the client felt confident in broadening his creative freedom.

All of the participants reported their intention to reflect and validate not only their client's expressions of personality, but also the emotional content within his music. Even though it was not possible to know the exact emotions the clients were intending to express, each participant sensed that his or her client was expressing emotion in his music. This supports the concept that music can be used to give voice to emotions, supporting a vast array of intensity (Amir, 2005; Bitti & Bonfiglioli, 2000; Costa, Lundqvist, Carlson, Hilmersson, & Juslin, 2009). Each participant in this study commented on how they

believe his or her client was able to share these emotions purely through the music. Because these emotional expressions were entirely communicated through the music, not words, interpretation was not necessary in order to authentically listen and respond by musically validating the statement made by the client. The music was able to capture the essence of the client's emotional musical statements in a way that perhaps words cannot do.

One final area of consistency across all participants was the value of music as a shared experience, and the intention of communicating this to the client through the music. This was another area of communication I did not expect to discover through this research study. However, the concept of togetherness in the music emerged as one of the main themes of this study as it was an extremely important aspect of developing the music language between each client and therapist. Each therapist shared his or her intention to communicate to the client that he was an equal partner in the music. This finding is congruent with the Nordoff-Robbins core principle of fostering a co-active relationship in the music (Aigen, 1996). Perhaps this feeling of empowerment contributed to the development of creative expression, original musical statements, and more complex, conversational musical interactions.

Limitations

The present study has several limitations that are important to take note of. First, although the original design of this study included children aged 3-18, the clients identified by the participants included a much smaller range in age. The data were limited to the experiences with clients aged 3-6 years old. Therefore, the results of this study are limited to reflecting the musical communication of young children as perceived by three Nordoff-Robbins Music Therapists.

Second, this study only focused on children diagnosed with autism and limited verbal language. Many other disabilities involve impairments in communication due to neurological, sensory, emotional, developmental, or cognitive impairments.

Finally, this study focused on a specific approach to music therapy, and thus only includes Nordoff-Robbins Music Therapists. It is important to recognize that the results of this study are consistent with many of the values of Nordoff-Robbins Music Therapy. In this approach, improvised music is central to the process of therapy. In addition, a co-active partnership is a valued element of Nordoff-Robbins Music Therapy. Therefore, it is important to recognize that the results are likely limited to the context of Nordoff-Robbins Music Therapy.

Methodological Considerations and Critique

I have had an interest in the communicative nature of music throughout my career as a music therapist working with people with a variety of disabilities, often with verbal limitations. My personal bias that music can be an effective method of communication with clients with verbal limitations was present throughout the process of conducting this research. In addition, I have had an interest in the Nordoff-Robbins Music Therapy model,

and my philosophical alignment with this approach was also present while conducting this research.

These biases were present throughout the process of conducting research, and certainly influenced the methodological processes that incorporated the researcher's observations and interpretations (steps 1 and 4 of the method). While reviewing the video-recorded session excerpts during step 1, there was subjectivity in my evaluation of which musical interactions appeared to be representative of communicative musical interactions between the therapist and client. This subjectivity was also present later in step 4 while reviewing the written interview transcriptions, highlighting statements that seemed to emerge as significant due to repetition or resonance with the emerging themes of music communication.

While clarifying the possible implications of researcher bias, it is also important to note the steps I took to minimize impact through the design of the methodology. In the method, during step 2, I documented impressions of the video-recorded session excerpts in the data table (Figure 1), bracketing my impressions before entering the interviewing phrase (Forinash & Grocke, 2005). As a result of this documentation, it was possible to review which themes of music communication originated from my perspective versus the participants' perspectives.

The interviews were also structured in a way that guided the participants toward the topic of music communication while remaining open to support the participants to share their unique experience with the phenomenon. The interview questions did not influence the content of the participants' answers in a way that altered their true experiences (Creswell, 2007).

Implications for Practice

The music therapy techniques illustrated in the present study imply an emerging framework of possibilities for methods of music communication. The data illustrated a variety of techniques through the participants' descriptions of how music was used to communicate with their clients. It is important to note that these examples are a representation of the individualized experiences that existed within each therapist-client relationship; therefore, the results are not intended to suggest a prescriptive application of music techniques to develop music communication with children with autism. However, the techniques described in the present study may inspire creative possibilities for using music to establish connection and communicate with mindfulness of each client's individualized interests and needs.

Music Language

Each therapist in the present study went through a distinct process of learning the unique music language of his/her client, using this individualized language as a foundation from which to facilitate development. Although each music language was unique to the musicality of the client and therapist, there were consistencies across all three processes of developing communicative interactions through music. Each therapist used music to communicate validation as a means for establishing a connection with a

client. This concept of “meeting the client” is rooted firmly in the philosophy of Nordoff-Robbins Music Therapy (Nordoff & Robbins, 1965); however, the technique of using music to communicate validation is not limited to Nordoff-Robbins Music Therapists,

There were specific music techniques used to communicate the acceptance of each client’s music; including imitating, reflecting, and incorporating the client’s musical ideas within the co-active music improvisation. This finding implies that the therapeutic relationship formed as a result of the therapist’s willingness to listen to the innate, existing musicality presented by each client. Therapists practicing across all treatment models could apply this concept of allowing the client to inspire the direction of the music through his/her musical expressions, body movements, vocalizations, or through the presentation of their way of being.

Musical Expression

Another consideration for practice is that music itself is a form of expression, not requiring translation into words. The current study implies that it is not necessary for the therapist to translate these expressions into words in order to effectively support the emotional content through music. Instead, there is an emphasis on active listening, and meeting the client with authenticity in the music while reflecting his or her expressions.

In the present study, music was used as a form of expressing and validating the client’s identity and emotional expressions in addition to supporting the client’s process of expanding creative freedom. The therapists created music inspired by the client’s innate musicality, his affect, movements, vocalizations, and style of playing. The therapists employed a range of musical styles while carefully considering the use of melody, harmony, rhythm, touch, register, dynamics, and tempo with the intention of reflecting the clients’ expressions.

This suggests the importance of carefully observing the client in each session, allowing the music to reflect his/her way of being as a method of establishing a therapeutic relationship. In addition, the present study underscores the importance of thoughtfully considering all elements of music when creating music with a client in therapy, and employing the music in a way that is reflective of the client’s non-verbal, verbal and/or musical expressions. The results of the present study may serve as a source of inspiration to clinicians to carefully consider the range of communicative and expressive possibilities of music.

Music as Shared Experience

The final implication for practice is the emphasis on the role of music in developing a therapeutic relationship. Within the present study, each client presented significant limitations with verbal communication. Therefore, it was the musical interactions and conversations that allowed for the development of each therapeutic relationship. While the therapists in the study intentionally created music to reflect the innate musicality and personality of the client, the therapist did so with his/her authentic musicality. Just as it was important for the therapist to reflect the music of his/her client, it was simultaneously important for the therapist to create music with authenticity.

Although I noted an emphasis on meeting the client in the moment, other examples from the data illustrated how the client followed and directly responded to the ideas presented by the therapist. The clients joined the therapist's music by matching pitch while vocalizing, imitating rhythmic motives, and establishing eye contact while experiencing a pause in the music. These examples are musical representations of the therapeutic relationship. They emphasize the importance of music therapist's musical authenticity in sessions, and their ability not only to follow clients, but also to lead them into musical interaction with clinical intention.

Recommendations for Research

Based on the findings of the current study, I would like to make three recommendations for further research. First, researchers should explore the phenomenon of music communication across a broader range of clients, including additional age groups, diagnosis and levels of verbal ability. Would the process for establishing a music language change, depending on the client's age, diagnosis and ability to verbally communicate? If so, how? Are there consistencies across client populations of what was communicated between client and therapist?

Second, researchers could expand on this study by recreating it with other existing methods and techniques of facilitating music communication, with a larger body of participants. The present study describes a variety of music techniques used to facilitate communication, validate expression, and build a therapeutic relationship. However, clinical examples are limited to the experiences of three Nordoff-Robbins Music Therapists. By establishing a more unified music-centered clinical language, researchers and practitioners could develop consistency in the way they describe the intentional use of music to facilitate communication. Developing a consistent music-centered language requires additional in-depth research, exploring specific music techniques for facilitating communicative interactions with children with autism and limited verbal communication.

Third, further research is needed in order to gain a more comprehensive understanding of how therapists use music communicatively across a variety of treatment models. The present study is limited to the communicative use of music within Nordoff-Robbins Music Therapy. It would be useful to explore consistencies and differences in how clinicians use music as a means for communicative interactions with their clients across a variety of models of music therapy. Doing so could answer questions about the possibilities for generalization of techniques and language regarding the use of music to elicit and establish communicative interactions in therapy across treatment models.

Concluding Thoughts

It is important to acknowledge that all of these clients live in a world where they do not speak the language of anyone around them. They do not have the verbal skills to engage with their peers, family members, teachers, etc. in a way that would enable them to develop an equal relationship based on verbal communication. Upon entering the music therapy session, each client was able to play an active role in creating an individualized music language. Through coactively developing this music language, the

client experienced the 'meeting of the minds' with another person, where the client was accepted as an equal partner in communication. Through this trusting partnership and shared language, the client and therapist were able to communicate ideas, validation, questions, invitations, preferences, conversations, disagreements, personality traits, emotions, humor, and acknowledgement of this unique shared musical experience. The therapist and client were able to establish this meaningful mutual relationship because of the unique possibilities that exist within the language of music.

It is my hope that the articulation of these themes of music as communication, supported by the music experiences of three Nordoff-Robbins Music Therapists and their clients, will provide inspiration for professionals working with children with limited communication, that they may see the possibilities within music, and new potentials within the children.

REFERENCES

- Aigen, K. (2001). Popular musical styles in Nordoff-Robbins clinical improvisation. *Music Therapy Perspectives*, 19(1), 31-44.
- Aigen, K. (1998). *Paths of development in Nordoff-Robbins music therapy*. Gilsum, NH: Barcelona.
- Aigen, K. (1996). *Being in music: Foundations of Nordoff-Robbins Music Therapy*. St. Louis, MO: MMB Music.
- Amir, D. (2005). Musical humour in improvisational music therapy. *The Australian Journal of Music Therapy*, 16, 3-24.
- Braithwaite, M., & Sigafos, J. (1998). Effects of social versus musical antecedents on communication in five children with developmental disabilities. *Journal of Music Therapy*, 35(2), 88-104.
- Bruscia, K.E. (2001). A qualitative approach to analyzing client improvisations. *Music Therapy Perspectives*, 19(1), 7-21.
- Clarkson, G. (1994). Creative music therapy and facilitated communication: New ways of reaching students with autism. *Preventing School Failure*, 38(2), 31-33.
- Costa, M., Bitti, P.E.R. & Bonfiglioli, L. (2000). Psychological connotations of harmonic musical intervals. *Psychology of Music*, 28(1), 4—22.
- Creswell, J.W. (2007). *Qualitative inquiry and research design: choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Edgerton, C.L. (1994). The effect of improvisational music therapy on the communicative behaviors of autistic children. *Journal of Music Therapy*, 31(1), 31-62.
- Forinash, M., & Grocke, D. (2005). Phenomenological inquiry. In B. L. Wheeler (Ed.), *Music therapy research* (2nd ed.), pp. 321-334. Gilsum, NH: Barcelona.
- Gilboa, A., Bodner, E., and Amir, D., (2006). Emotional communicability in improvised music: The case of music therapists. *Journal of Music Therapy*. 43(3), 198.
- Graham, J. (2004). Communicating with the uncommunicative: Music therapy with preverbal adults. *British Journal of Learning Disabilities*, 32(1), 24-9.
- Lee, C. (2000). A method of analyzing improvisations in music therapy. *Journal of Music Therapy*, 37(2), 147-167.
- Lundqvist, L.O., Carlsson, F., Hilmersson, P., and Juslin, P.N. (2009). Emotional responses to music: experience, expression, and physiology. *Psychology of Music*, 37, 61 - 90.
- Marshall, C., & Rossman, G.B. (2006). *Designing Qualitative Research* (4th ed.). Thousand Oaks, CA: Sage.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage.
- Nordoff, P. and Robbins, C. (2007). *Creative music therapy: A guide to fostering clinical musicianship* (2nd ed.). Gilsum, NH: Barcelona.
- Nordoff, P. and Robbins, C. (1965). *Music therapy for handicapped children*. Blauvelt, NY: Rudolf Steiner.
- Patton, M.Q. (1987). *How to use qualitative methods in evaluation*. Newbury Park, CA: Sage.

- Pavlicevic, M. (2000). Improvisation in music therapy: Human communication in sound. *Journal of Music Therapy*, 37(4), 269-285.
- Perry, M.M.R. (2003). Relating improvisational music therapy with severely and multiply disabled children to communication development. *Journal of Music Therapy*, 40(3), 227-246.
- Robbins, C. & Robbins, C. (1998). *Healing heritage: Paul Nordoff exploring the tonal language of music*. Gilsum, NH: Barcelona.
- Shim, Sung-Yong (2007). Personal experiences of non-verbal communication through musical dialogue (clinical improvisation). *Voices: A World Forum for Music Therapy*. Retrieved from: <http://www.voices.no/mainissues/mi40007000244.php>.
- Steiner, Rudolf (1977). Lecture Two in *Eurythmy as visible music*, 2nd ed. London: Rudolf Steiner Press.
- United States Department of Health and Human Services, Centers for Disease Control and Prevention. (2012). *Prevalence of autism spectrum disorders – autism and developmental disabilities monitoring network, 14 sites, United States, 2008*. Morbidity and Mortality Weekly Report: Surveillance Summary: Vol. 61, No. SS—3, pp. 1-19). Retrieved from: http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6103a1.htm?s_cid=ss6103a1_w
- Wheeler, B. L., & Kenny, C. (2005). Principles of qualitative research. In B.L. Wheeler (Ed.), *Music Therapy Research* (2nd ed., pp. 59-71). Gilsum, NH: Barcelona.
- Zuckermandl, V (1973). *Sound and symbol: Music and the external world*. Princeton, N.J.: Princeton University Press.

*Appendix A: Description of Music Therapy Session Excerpts**Description of Judy and Alexander's Music Therapy Session Excerpt #1*

This excerpt is 90 seconds in duration. The excerpt begins with Judy playing a Dorian theme using a dotted rhythm in 6/8 time on the piano. Alexander joins in by matching the basic beat on a drum, playing with two mallets. Then he vocalizes using high-pitched vocalizations on “ah,” reflecting the dominant scale tone. When the phrase ends, Alexander walks over to Judy and the piano and she sings “hello” (tonic to dominant). He immediately responds by singing a sustained vocalization, “yayayaya” around the dominant scale tone in a high pitch.

Judy incorporates his rhythmic vocal contribution into the piano music, and again sings, “Hello Alexander.” Then Judy resumes the original Dorian theme with a strong basic beat, and Alexander returns to the drum and resumes beating. Ten seconds later, he wanders towards the window and the co-therapist in the session gestures to direct him back to the drum.

Judy initiates a new melodic theme, still using Dorian mode, and Alexander resumes playing the drum on the basic beat. At the end of a musical phrase, he walks over to Judy and she stops the music. Without verbal direction, he independently returns to the drum and the music resumes. He pauses his beating again and looks over his shoulder towards Judy, smiling. This time, Judy continues playing the piano and in response, Alexander continues his drumming. Alexander resumes vocalizing as the excerpt comes to a close.

Description of Judy and Alexander's Music Therapy Session Excerpt #2

This excerpt is 60 seconds in length. The excerpt begins with a 20-second transition where Judy and Alexander are setting up in a corner of the music therapy room with the guitar. Judy begins playing the guitar in a slow tempo on a d minor chord. Alexander reaches out to strum the guitar with his hand, and then initiates a faster, rhythmic vocalization around the pitch “A” using a non-verbal sound, “gagaga.” In response Judy matches the change in tempo on the guitar and through her own vocalizations.

Judy pulls back the tempo of the music toward the end of a phrase, and Alexander vocalizes on the pitch “A,” seemingly in response to her phrasing. Judy repeats this method of pulling back the tempo towards the end of another phrase, and Alexander reaches out to strum the guitar.

Judy vocally initiates a scale-like motive (D-E-F#-G-A), now shifting to D Major. Her melody slows down as she approaches the “A” (dominant scale tone), pausing slightly. In response, Alexander vocalizes “A” in this musical space. This vocal interaction repeats four times and then Alexander stands up and walks away from Judy.

Description of Judy and Alexander's Music Therapy Session Excerpt #3

This excerpt is 110 seconds in duration. The excerpt begins with Judy playing a short melodic motive in the upper register of the piano in C major. Alexander is standing next to the piano, moving his fingers to the fast pulse of the music while playing the wind chimes. Then, he pauses his playing and begins to move Judy's hands to a slower pulse on the piano. Alexander moves back to the wind chimes, and Judy resumes her fast-paced melodic motive. He moves to position himself closer to the piano, while still playing the wind chimes. Judy modulates to D# major, using the same fast-paced melodic motive in the upper register of the piano. Alexander hits the wind chimes on beats 2 and 4, joining Judy's motive.

Then, Alexander moves closer to the piano and once again takes Judy's hand, moving her hand to a slower pulse. In response, Judy moves to the lower register of the piano and resumes playing. He immediately takes her hands, directing her back to the upper register of the piano. This interaction continues, where Alexander seems to be using hand-over-hand prompting to direct Judy to play in a slower tempo in the upper register of the piano. Judy alternates between the original fast-paced melodic motive and the slower tempo initiated by Alexander.

Alexander directs Judy to pause the music by pulling her hands off the piano, and reaches out to play the chimes. Then he directs her hands back to the piano. Now he begins tapping Judy's arm, starting in a slow tempo and increasing in speed until the tempo of the original fast-paced melodic motive is reached.

This interaction continues, with Alexander's hand resting upon Judy's while she plays the piano. At the end of each phrase, he lifts her hand slightly for a brief pause. Then, he sits next to Judy, hooks his arm with hers, and rocks with her to the beat of the music. He leans forward and smiles at her.

Alexander once again resumes tapping Judy's arm, and she plays the piano following this tempo. Then he stands up from the piano bench and resumes playing the chimes along with Judy's piano accompaniment. The excerpt ends with Alexander's glissando-like vocalization on "wooo" sounds.

Description of Mary and Christopher's Music Therapy Session Excerpt #1

This session excerpt is 60 seconds in duration. The excerpt begins with the client (Christopher) facing the wall in the corner of the music therapy room, gently swaying side to side while holding a maraca. The therapist (Mary) begins to play the piano, matching the pace of the client's movements. Then she introduces a change by shifting to Spanish idiom, emphasizing the eighth notes in 6/8 time. Mary presents a short melodic motive followed by a pause. In response, Christopher turns towards the therapist and begins walking around the room to the beat of the eighth notes while shaking his maraca. This musical interaction continues, with Mary playing the piano and Christopher vocalizing, moving around the room while shaking his maraca to the rhythmic pulse.

In the last ten seconds of the excerpt, Christopher walks over to the piano and reaches out to play on beats one and four within the context of the music Mary improvises.

Description of Mary and Christopher's Music Therapy Session Excerpt #2

This session excerpt is 100 seconds in duration. The excerpt begins with Mary and Christopher seated at the piano, playing together. Christopher plays loud bursts of tone clusters with open hands, while Mary reflects his volume and dissonance in her improvising. Then Mary introduces a descending bass-line in a minor key. Christopher continues playing tone clusters, spreading out his fingers. He looks at Mary and smiles. Mary continues playing a descending chord progression in a minor key, adding accents to her beats followed by a pause in the music. Christopher vocalizes on an “oo” sound in the pause. He then becomes distracted, putting his fingers in his mouth.

Mary presents a short, clear phrase (eighth-eighth quarter), followed by a pause. The first time she played the phrase, Christopher did not respond. The second time she presented the phrase, he immediately resumed playing tone clusters on the piano, adding vocalizations on “oo.” This interaction continues for 20 seconds, where Mary plays a short phrase followed by a pause and Christopher vocalizes on an “oo” sound while playing tone clusters on the piano.

Then Mary initiates a new theme, half notes moving upward in a scale-like pattern with a gentle, quiet volume, pulling the music back. Christopher responds to this by resuming his tone clusters with increasing volume. Mary reflects his burst of energy, meeting his tempo and dynamic volume.

Christopher initiates a syncopated rhythm on the piano, and Mary incorporates this rhythmic motive into her improvisation. Christopher looks at her and smiles in response.

The music builds again, as Mary accompanies Christopher's energy into a driving, eighth-note melody. Christopher is playing with two hands on the piano. Gradually Mary introduces a diminuendo and slight ritardando, and he follows now playing with less force as the intensity of the music fades. The excerpt ends as Mary resumes the half-note motive.

Description of Mary and Christopher's Music Therapy Session Excerpt #3

This session excerpt is 130 seconds in duration. The excerpt begins with Christopher strumming a guitar tuned in open fifth intervals. Then Mary begins to strum, presenting a steady pulse. She emphasizes the pulse by vocalizing “ooo” on the first beat of the pulse in 4/4 time. After about 20 seconds, Christopher begins to bob his head to the beat of the music.

Mary initiates an upward moving melodic motive, three quarter notes followed by a pause. Christopher responds by vocalizing on “ooo.” He then changes the sound to “eee,” and she incorporates this into the improvisation.

After 30 seconds of vocal exchanges, Mary resumes the steady tempo, no longer leaving a pause in the music. There is a back-and-forth exchange of vocal ideas between Mary and Christopher. The melodic motives expand to four notes. Some of the vocal responses are a direct imitation of the other person, and some are new melodic and rhythmic ideas. This vocal exchange continues for 40 seconds. At the end of the improvisation, Mary asks if he wants to sing more and he replies, “mo.”

Description of Adam and Neil's Music Therapy Session Excerpt #1

This session excerpt is 50 seconds in duration. The excerpt begins with the therapist (Adam) playing piano and the client (Neil) playing the cymbal. The tonality of the music is Mixolydian mode with a light, playful touch on the piano. Adam presents a single chord and pauses, waiting for Neil's response on the cymbal. Neil crashes the cymbal louder, and Adam emphasizes this through increasing his volume on the piano and incorporating dissonance in the harmony. Neil laughs, looking at Adam.

This interaction evolves when Adam presents a rhythmic motive: eighth-eighth quarter, and Neil imitates this on the cymbal. However, the third time Adam presents the motive, Neil instead initiates a new idea (four eighth notes). Adam immediately incorporates this new rhythmic motive into the improvisation, and again Neil laughs.

Then the musical pulse becomes more sustained, and Adam resumes playing the Mixolydian theme "Music Time for Neil," an improvised greeting song. In response, Neil resumes playing a steady beat on the cymbal.

Description of Adam and Neil's Music Therapy Session Excerpt #2

This excerpt is 110 seconds in duration. The excerpt begins with Neil playing a steady beat on the snare drum with a mallet in each hand while Adam plays piano. Neil matches the quarter note pulse while beating simultaneously with both hands. Adam begins playing only on beats one and three, and Neil continues beating the quarter note pulse.

Then, Adam comes to the end of a phrase and pauses. Neil crashes the cymbal and looks at Adam. Adam plays a loud chord on the piano and Neil laughs. This interaction of a cymbal crash followed by a chord on the piano continues for 30 seconds. Throughout this interaction, Adam utilizes a series of chords based on tri-tone relationships, so one chord leads to another without resolving. After each cymbal crash, Neil looks towards Adam, waiting for his response.

Adam presents the Mixolydian theme "Music Time for Neil" on the piano, and Neil responds by resuming his steady beats on the snare drum. This theme continues for 15 seconds.

Then Adam presents a diminuendo and ritardando in the music, and Neil follows. The lyrics change as Adam sings, "listen, listen" supporting these lyrics with chords reflecting the rhythmic pulse of the words. The piano music comes to a cadence followed by a pause. Neil holds his mallets up in the air and looks towards Adam, refraining from playing. Neil crashes the cymbal loudly with his left mallet, maintaining eye contact with Adam. Adam responds with a loud chord on the piano. Neil laughs in response.

The excerpt ends with Neil returning to the snare drum, presenting a new, dotted rhythmic idea, Adam joining on piano.

Description of Adam and Neil's Music Therapy Session Excerpt #3

This session excerpt is 40 seconds in duration. The excerpt begins with Neil seated in front of the snare drum and cymbal, playing the snare drum by alternating

between two mallets. Neil initiates an *accelerando* by playing rapidly on the snare drum. Adam responds, meeting him in this change by playing melodic idea, starting in the low register of the piano and moving higher using a chromatic scale. Neil smiles, looking at Adam and continues to beat even faster on the snare drum.

After 10 seconds, Neil stops drumming and Adam pauses on the piano. Neil beats one time on the drum and looks towards Adam. Adam responds with a loud chord on the piano. Then Neil resumes playing fast beats on the snare drum, and Adam supports this by continuing fast, chromatic melodic ideas on the piano.

Neil pauses his drumming again, and Adam pauses his piano playing. This time, Adam resumes playing the Mixolydian “Music Time for Neil,” theme, and Neil joins in beating the snare drum with a steady beat.

Appendix B: Interview Questions

1. What do you remember about (client's) ability to communicate outside of the music therapy session?
2. In general, how did (Client) find ways to communicate with you during the session (verbal, nonverbal, musical, etc)?
3. Tell me about your experience playing music with your client.
4. From the therapist's perspective, what was happening in this excerpt?
5. How are you using the music to communicate?
6. Are there any specific musical moments in this excerpt that you would like to highlight as especially significant for your client?