

# Music Therapy as a Treatment for Children with Autistic Spectrum Disorder

A Thesis

Submitted to the Faculty

Of

Drexel University

By

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in partial fulfillment of the

requirements for the degree

of

Master of Science in Art Administration

Jan 2016



## DEDICATIONS

To my mother, Sereline L. Lewis: Thank you for your unconditional love and support for as long as I can remember, on January 5, 2016 you became even more of my “why”. I love you more than words can ever express!

To my family and friends:

Thank you for your love, support, and understanding my absences throughout this thesis process and entire graduate program.

A very special message to Daniel and Jaden:

Thank you for being tangible examples of how extraordinary and precious individuals affected by autism are to us. Nuv Nu... Muah!

## ACKNOWLEDGEMENTS

To my thesis advisor, Dr. Brody: Thank you for your support and guidance throughout this journey, especially your encouragement in the beginning when my mother fell ill. Your words of care, concern and reassurance became fuel to keep me going. I greatly appreciate that!

To Dr. Zitcer: Thank you for your expertise and thorough teaching of the thesis process. The feedback and comments you shared at the culmination of the process were very valuable. I am gratefully indebted to you for your contribution to this thesis.

Thank you for both of your time, advice, and encouragement!

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**ABSTRACT**

Music Therapy as a treatment for children with Autistic Spectrum Disorder?  
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Autism Spectrum Disorder (ASD) is an increasingly prevalent disorder affecting many children in the world today. The impact of autism on a child and their family is significant. This disorder is life changing and its early detection, diagnosis, and treatment is essential for the growth and development of a child affected by ASD. There are several traditional therapies associated with the treatment of ASD in children that include: speech, occupational, applied behavior analysis therapy. Music therapy is not included in the core list of therapies, but is a viable and effective tool to reinforce the concepts taught in the traditional therapy treatments. The purpose of these therapies, including music therapy, is to improve social behaviors, increase focus and attention, increases communication attempts (vocalizations, verbalizations, gestures, and vocabulary), reduce anxiety, and improve body awareness and coordination. Through my findings during this thesis process I have found that music therapy is a viable and effective treatment for autistic children.





## CHAPTER 1: INTRODUCTION

The world of autism is a very complex one. Autism spectrum disorder (ASD) is the term used for a group of complex disorders of brain development. These disorders can run the gamut from difficulties in social interaction, verbal and non-verbal communication, as well as repetitive behaviors. No two autistic children are alike; often they are described to be analogous with snowflakes. As time continues to pass the prevalence of autism is said to increase ten fold to what exists today. The prevalence is in part due to improved diagnosis and awareness. Currently, 1 in 68 children are diagnosed autistic, and boys are four to five times more likely to be autistic than girls (CDC, 2010). Each autistic child is unique and some have exceptional abilities in visual skills, music, and academic skills. Autistic children often participate in various therapies to assist with their overcoming the various developmental challenges they experience. Music therapy is a tool used to help with that in a different and non-traditional way. Music therapy essentially is therapy designed to aid physical and emotional health through the use of music. The use of music to effectively manage stress and promote wellness is the essence of music therapy. Music therapy affects the body in very powerful ways.

This thesis explores the impact of music therapy on autistic children to determine if it is a viable and effective treatment. I conducted a literature review concentrating on the etiology of autism; the history of music therapy, and ways music therapy is used to treat autism.

I also conducted various interviews with practicing music therapists, who treat children with ASD, in order to understand how music affects children with ASD and discuss various improvements that happen due to the child's sessions. I interviewed four different music therapists and observed music therapy sessions during two of the site visits.

Current research has indicated that music therapy is an effective treatment for children with ASD (Wigram & Gold, 2006; Whipple, 2004; Kaplan & Steele, 2005). Music therapy is defined by the American Music Therapy Association, as "an established healthcare profession that uses music to address physical, emotional, cognitive, and social needs of individuals of all ages. Music therapy improves the quality of life for persons who are well and meets the needs of children and adults with disabilities or illnesses" (2004, 90-92). Because music therapy is used to treat persons with disabilities, it is used to treat children with autism. Autism is a very complex and intricate disorder. The Autism Society defines the disorder as:

"Autism spectrum disorder (ASD) is a complex developmental disability; signs typically appear during early childhood and affect a person's ability to communicate, and interact with others. ASD is defined by a certain set of behaviors and is a "spectrum condition" that affects individuals differently and to varying degrees. There is no single known cause of autism, but increased awareness and early diagnosis/intervention and access to appropriate services/supports lead to significantly improved outcomes. Some of the behaviors associated with autism include delayed learning of language; difficulty making eye contact or holding a conversation; difficulty with executive functioning, which relates to

reasoning and planning; narrow, intense interests; poor motor skills' and sensory sensitivities" (Autism Society, 2015).

Autism is not curable, and a child will not outgrow the disorder, but early diagnosis and intervention is key to improving the outcome and quality of life for the impacted child. Children with ASD grow up to become adults with ASD. Thus, the importance to detect the disorder and treat effectively as early as possible to develop skills essential to living in the world as a functioning adult. Other disorders that are similar to autism fall under the umbrella of Pervasive Developmental Disorders (PDD). These disorders refer to disorders characterized by delays in the development of socialization and communication skills. Parents may notice symptoms as early as infancy, although the typical age of onset is before three years of age. Symptoms may include problems with using and understanding language; difficulty relating to people, objects, and events; unusual play with toys and other objects; difficulty with changes in routine or familiar surroundings, and repetitive body movements or behavior patterns. Autism is the most characteristic and best-studied PDD. Other types of PDD include Asperger's Syndrome, Childhood Disintegrative Disorder, and Rett's Syndrome. Children with PDD vary widely in abilities, intelligence, and behaviors. Some children do not speak at all, others speak in limited phrases or conversations, and some have relatively normal language development. Repetitive play skills and limited social skills are evident. Unusual responses to sensory information, such as loud noises and lights, are also common (National Institute of Neurological Disorders and Strokes, 2015).

The uniqueness of ASD has encouraged therapists to delve into learning more and more about ASD. In the book, *Early Childhood Music Therapy and Autism Spectrum Disorders*, Petra Kern and Marcia Humpal (2013), the authors explain the three core features that define ASD:

1. impairments in social interaction
2. impairments in communication and language development
3. presence of repetitive, restrictive and/or stereotypic behaviors.

Children with ASD usually have significant difficulty in relating to others. The book supports the belief that music therapy has a positive impact on the growth and development of children with ASD through evidence-based practices (EBP). The book is segmented into five separate parts: Introduction and Research, Assessment and Goals, Treatment approaches, Collaboration and Consultation, and Selected Resources. The various authors contributed chapters in which they detailed music therapy practices of high standard pertaining to the desired outcomes. The contributors to the book provide a wealth of knowledge on approaches in integrating music into everyday home schedules. The book shares the importance of collaboration and consultation with the child's interdisciplinary team members. It is necessary for each area of therapy to work together for the overall growth and development of a child with ASD. The book provides a detailed understanding of the implementation and wide range of music therapy approaches that have proven successful in benefiting children with ASD as well as their families.

## CHAPTER 2: LITERATURE REVIEW

### 2.1 Overview

Children with autism differ greatly depending on where they may “sit” on the spectrum. Their behavior is exemplary of a child who has been shut in. This is because emotionally and intellectually they are incapable of being social, all be it verbal or initiating physical contact. Those skills are viewed as characteristic features of commonplace human relationships. Although awkward in initiating and maintaining these types of relationships, they can be typically very important to a child with ASD. A child with ASD often exhibits prodigious abilities in mathematics and music; music is unique in that it contains emotional content. The concept that music seems to succeed in reaching someone, a child with ASD who is shut in, where other methods fail is an important one to consider. For my purposes, I will focus on children with music sensibility, reviewing the connection between music therapy and the child with ASD and its impact on their improvement and growth.

Previous qualitative studies and small samples of quantitative studies have proposed that music therapy is a viable treatment for children with autism. There are those who believe otherwise who are both music therapists and non-music therapists. This literature review look at existing evidence based on practice principles throughout my gathering of information, autism and music, strengths and some limitations of music therapy practice with children.

## 2.2 Autism

### 2.2.1 History

Before the 1940's, children that showed signs of what we consider today autism were said to be psychotic or mentally deficient. Leo Kanner, a psychiatrist, made the first clinical description of autism in 1943. Kanner identified two aspects that all of the more than 120 children he studied over a 15-year timeframe possessed. The children had a profound "autistic aloneness" and an "obsessive insistence on the preservation of sameness" (New England Journal of Medicine, 2013). His case studies are abundant with examples of symptoms of what we now think of as classic autistic behavior.

Kanner observed 11 children in 1943 and published a paper called 'Autistic Disturbances of Affective Contact.' These 11 children exhibited various common symptoms such as delayed speech, good rote memory, obsessive need for sameness, non-communicative use of speech after it is acquired and normal physical appearance (Kessler, 1988). He identified common characteristics including the 11 children that he called as 'early infantile autism'. The following characteristics are what Kanner deemed the main characteristics of an autistic child's behavior:

1. an inability to establish social relatedness
2. a failure to use language typically for communication
3. an obsessive desire for the maintenance of sameness
4. a fascination for objects
5. good cognitive potentialities
6. these characteristics appear in the child before the age of 30 months (Trevarthe et al., 1998).

Kanner did not believe that these children fit into the previous diagnosis of psychotic or schizophrenic. He also did not accept another popular belief of the time known as “refrigerator mother” theory. Bruno Bettelheim, a child psychiatrist, argued that autism was caused by cold and emotionless parenting (Trevarthe et al., 1998). The theory affirmed that this type of parenting pushed the child into mental isolation. This theory was a contributing factor in the widespread belief that autism was a mental illness rather than a developmental disability. In 1964, Bernard Rimland played a significant role in changing the manner in which autism was viewed by the world of psychiatry. He wrote “Infantile Autism: The Syndrome and Its Implications for a Neural Theory of Behavior.” In this paper, Rimland argued that autism is a biological disorder, not an emotional illness (Sicile-Kira 2004). Bernard Rimland founded the Autism Society of America. The concepts in Rimland’s paper have led to the existing standardized diagnostic criteria used to establish autism as a developmental disorder and not as a mental illness. The American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) currently provide the characteristics necessary for the diagnosis of autism. These are based on Kanner’s original criteria as well as Rimland’s arguments. A primary distinction between a developmental disorder and a mental illness is a developmental disorder can be a barrier to learning where a mental illness does not affect intellectual abilities but alters the thought processes and perceptions.

### 2.2.2 Definition and Diagnosis

Autism is considered to be a pervasive developmental disorder and is characterized by qualitative impairments in social interaction and



communication. Children with ASD have restricted, repetitive, stereotyped behavior, interests, and activities. Essentially children with ASD do not engage in natural creative play, as do non-autistic children. Although clinical reports on autism surfaced before the 1900s, originally the definition of symptoms was peculiar fantasies in patients diagnosed with schizophrenia, and then the definition merged into hallucinations in psychiatric patients. During the same period Kanner was doing his work, Hans Asperger, an Austrian pediatrician, discussed autistic psychopathy. He asserted that children with autistic psychopathy learned to speak well and are socially aware of others. The differences between Kanner's work and Asperger's became the delineation between Asperger's syndrome and autistic disorder. Over the many decades that followed Kanner's work, many children who exhibited those behaviors he described were identified to have childhood schizophrenia, child psychosis or mental retardation. In 1980, autism was added to the Diagnostic and Statistical Manual of Mental Disorders (Dingfelder, Sadie, 2004).

### 2.3 Treatment

I did not delve into the following two approaches but deemed it noteworthy of mentioning them since they are used to treat autism. Diet and pharmacologic treatments are often used to treat children with ASD. These children tend to experience gastrointestinal problems as well as food allergies. Researchers have found that children with ASD are 6 to 8 times more likely to report frequent gas/bloating, constipation and diarrhea. While these children experience these challenges, they are more prone to show worsened

behavioral problems. These problems include irritability, social withdrawal, stimming (stereotypy). (Brooks M. 2004)

It is recommended that children with ASD consume 3-well balanced meals each day. Often a nutritionist or dietician is used to determine if a special diet will benefit the child. These diets are said to include a gluten free and casein free plan. Vitamin B-6 and magnesium are two important vitamins said to help some children's progress (Chaidez V, Hansen RL, Hertz-Picciotto I. 2013).

### 2.3.1 Behavioral Approaches (Treatments)

Behavioral treatments are concerned about a child's current behavior, evaluating it and determining how it can be changed or improved. The ideologies that explain how a person learns are the focus of Behavioral Analysis. The concept of positive reinforcement is an example of such an ideology. When a person is rewarded for displaying a particular behavior, it is more likely to be repeated. The field of Behavioral Analysis has developed several techniques for increasing useful, positive behaviors and minimizing those that are harmful.

Applied Behavior Analysis (ABA) is the use of these principles and techniques to bring forth said positive behaviors. ABA is the most used/common type of behavior interventions used with children with ASD. It is the application of behavioral principles to a child's everyday life that over time will improve or decrease certain behaviors. ABA helps children with ASD acquire various skill sets as well as minimize negative behaviors. ABA is formally defined as: "Applied Behavior Analysis is the process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree, and to demonstrate that the

interventions employed are responsible for the improvement in behavior.”

(Autism Society, 2015)

ABA is an extensive treatment approach as its purpose is to improve socially significant behaviors of children with ASD. Approximately 25 hours per week are needed for a child with ASD to develop in the areas of communication, social skills, academics, reading and adaptive living skills. Adaptive living skills are skills that a child with typical development (TD) may not find challenging over a great deal of time such as dressing, feeding themselves, gross and fine motor skills, toileting and personal self-care. TD children learn without any intervention, their environment is conducive to learning language, play, and social skills. Children with ASD learn quite a bit less easily from their surroundings. Their learning environment usually has to be very structured; ABA is used to create an environment in which a child with ASD can learn more naturally. ABA has been endorsed by some state and federal agencies, including the U.S. Surgeon General. The use of ABA has helped children with ASD grow to live happy and productive lives.

In particular, ABA principles and techniques can foster basic skills such as looking, listening and imitating, as well as complex skills such as reading, conversing, and understanding another person's perspective. A child with TD does not have excessive difficulty in paying attention, but this can be a big challenge for a child with ASD. This lends to their difficulty in communication, thus it is imperative to their development to acquire these skills.

### 2.3.2 Educational Approaches

SCERTS is an educational approach that is used to help a child with ASD become a competent and confident social communicator. The acronym "SCERTS" refers to the focus on:

"SC" – Social Communication – the development of spontaneous, functional communication, emotional expression, and secure and trusting relationships with children and adults;

"ER" – Emotional Regulation – the development of the ability to maintain a well-regulated emotional state to cope with everyday stress, and to be the most available for learning and interacting;

"TS" – Transactional Support – the development and implementation of support to help partners respond to the child's needs and interests, modify and adapt the environment and provide tools to enhance learning (e.g. picture communication, written schedules, and sensory supports) Specific plans are also developed to provide educational and emotional support to families and foster team work among professionals (Prizant, B., Wetherby, A., Rubin, E., Laurent, A., & Rydell, P., 2006).

Although SCERTS is a unique systematic method used to ensure that suitable support is provided to add to a child's day, it includes ABA, TEACH, Floor time and other approaches in its methodology. In the execution of SCERTS, there should be a partnership between the child's parents, other caregivers, and siblings because it is most effective if executed in everyday activities. SCERTS targets a child's goals in the areas for which the name stands; this is the foundation for potential developmental growth in the child's everyday life.

### 2.3.3 Psychological Approach

Psychoanalysis was an early treatment of children with ASD but was discarded as a viable treatment in the United States. According to Sadack and Sadack (2003) psychoanalysis, which is an insight-oriented individual psychotherapy, is not an effective means of treatment for children with autism.

## 2.4 Music Therapy and Autism

### 2.4.1 History of Music Therapy and Autism

In the 1940s, the medical community in the US considered a holistic treatment philosophy regarding the treatment of what they deemed psychiatric disorders. Music therapy, while in the midst of being defined, began to become a part of treatment in institutions and psychiatric hospitals. The National Association for Music Therapy was formed in 1950, along with other British societies and various publications began to circulate. During 1950-1974, music therapists used singing groups, folk dancing, and rhythm activities to achieve their various goals. Self-expression, socialization rehabilitation, psychological enrichment and recreation became areas music was used to treat.

The idea to place children with autism into music classrooms with typical developing children in the later part of the 20th century rested on the observation that these children had an unusual interest in music and the unusual ability to reproduce familiar pieces with extraordinary precision. Pioneers in improvisational music therapy for children with autism shared an alternative concept or theory for musicality. Two types of musicality may be distinguished: to be able to perceive music (musical receptivity) and to be able to reproduce music as well as creating music (musical creativity). They believed that the

children with autism experienced music as a nonthreatening medium and thus were more likely to become involved than other environments.

In 1969, the first article in the *British Journal of Music Therapy* was published to address improvisational, as well as more structured techniques used for children with autism. As time moved forward in the 1970s, the music therapy profession grew internationally as organizations and practices were established. In the 1980s, the Education for All Handicapped Children Act, Public Law 94-142 stated that free and appropriate public education for children with disabilities. Autistic children were not added until the 1990 revision of this law. (CDC 2015) Although music therapy was being use to treat autism, this revision to the law increased its use.

#### 2.4.2 The Effects of Music

Music has many benefits to a person's well being. It can evoke emotion, reduce stress, uplift a person's mood, and alleviate pain as well as other therapeutic effects. Music engages various portions of the brain. The brain is divided into two hemispheres, the left and the right.

The brain processes information in an intuitive and creative manner in the right hemisphere. The left hemisphere is involved in analytical thinking, such as verbal and mathematical skills. The corpus callosum connects the left and right brain hemispheres and facilitates communication between the two hemispheres.

## Music on the mind

When we listen to music, it's processed in many different areas of our brain. The extent of the brain's involvement was scarcely imagined until the early nineties, when functional brain imaging became possible. The major computational centres include:

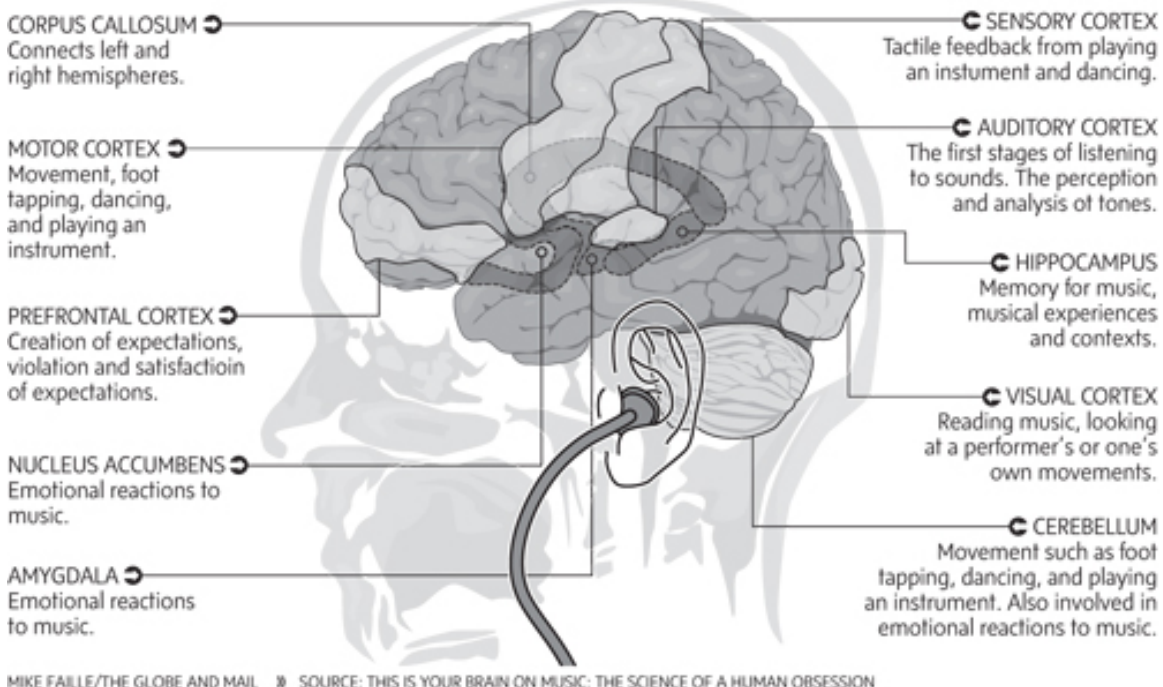


Figure 1.1 – The Way Music Affects the Brain

### 2.4.3 Impact of Music Therapy on Children with Autism

Two methods/models used to produce evidence-based interventions are the Rational-Scientific Mediating Model (R-SMM) and the Transformational Design Model (TDM). The connection between the response from an investigation of a specific physical, neurological, and psychological response to music and an analogous nonmusical response is the method used in the R-SMM. A developed hypothesis is the basis of the specific intervention or treatment that has been derived from the determination of musical responses is generalized to a nonmusical setting. Hayoung Lim provided an example of R-SMM in the

application by identifying music perception as a psychological response to music. When combining this response to speech and language perception, it presented a logical and empirically supported foundation to analyze the positive use of music in speech production for children with autism.

Temple Grandin is an autistic best-selling author and a prominent advocate for the autistic community. Grandin (1995) noted that children with ASD are often to be visual learners, thus, often information shared verbally may not be as effective. Taking into account this learning style preference, “social stories” were developed by Carol Gray in 1993 (Gray and Garrand, 1993). Social stories are a visual system of delivering social information. These are a combination of visual cues along with descriptive sentences that help the child with ASD relate to the desired behavior. The goal of the short story is to share relevant information such as a description of a person, skill, event, concept or social situation. TDM takes evidence-based treatments and attempts to dismiss the use of activity-based, non-goal driven treatments that are based on client assessments.

A counterpoint exists in the area of appropriate assessment of children with autism being treated with music therapy. While Wigram and Sherman propose that a music therapy diagnostic evaluation can supply a unique perspective on the strengths and needs of a child, the Social Communication, Emotional Regulation, and Transactional Support (SCERTS) curriculum, as discussed above, has also been used as an assessment tool. Unfortunately, difficulty has arisen for music therapists, because of a universal quality tool the concern is the lack of common language or terms between the tools. It is suggested that further research be done to strengthen the evidence-based



methods, so that techniques unique to music therapy are validated and more widely accepted.

Currently, music is used for autism treatments because of the beneficial effects music has on children with ASD. Dr. Jennifer Whipple is a leader in the music therapy field, as well as an Associate Professor and Director of Music Therapy at Charleston Southern University, where she teaches courses in music therapy methods and research methods and supervises students completing clinical experiences in early childhood education and neonatal intensive care settings.

Whipple found that the use of music therapy, with children with ASD, increased communicative behaviors such as vocalization, verbalization, gestures, vocabulary comprehension, and echolalia with communicative intention. Since music is comprised of many separate yet unified parts such as pitch, melody, rhythm, harmony, form, timbre and dynamics, all of these are essential to the effect it has on a child with ASD. As all these elements are perceived, they share a common auditory perceptual strategy. Rhythm perception is similar to the perception of numbers in an organization such as counting.

Processing sentence structure is similar to the memory of melody contour. Music and speech perception follow the same principles of perceptual organization (Whipple, J. 2004). To this end, the concept of music and language being closely related is quite feasible. Music is in essence a language of its own. Language development in children with autism is greatly influenced by the capacity for pattern perception based on Gestalt's Perceptual Pattern Processing. This processing explains how our minds make adequate adjustments for missing information. The concept is how a series of flashing lights often appears to be

moving, such as neon signs or strands of Christmas lights. According to Gestalt psychology, this apparent movement happens because our minds fill in missing information. This belief is that the whole is greater than the sum of the individual parts (Whipple, J. 2004).

Music adds value in a therapeutic manner to our lives with out us often realizing it. It means various things to an individual but often brings joy or happiness to our everyday lives. This added value is one of the reasons music therapy is essential to the development and growth of a child with ASD. Music can be used as a powerful tool for many reasons, but mainly because of its impact on our brains and bodies. Music is inherently a core function of our brains. As babies, humans can detect differences in rhythmic patterns. Mothers use lullabies and rocking to soothe cranking, crying babies. Our babies connect with music through rhythmic entrainment. (Miendlarzewska & Wiebke, 2014). Entrainment is a term used in physics to describe how two objects are moving together is less energy than two objects moving in opposite directions. Although the object may be moving differently, when placed in an adjacent space they will over time begin to move in synchronicity. This is used in therapy to help the individual become more in tune with their rhythm and the external rhythms around them. Combining movement and music accomplish this.

Children with ASD seem to be “out of sync” with the world around them due to the multiple symptoms of ASD. Everyone has a heartbeat that is specific to his or her body. This system carries oxygenated blood that travels to the brain, which controls the central nervous system. This system, the central nervous system, tells us how and when to move our body. An automatic response of our bodies is the ebb and flow of our circulation rate by how we feel. If we are

excited, nervous, fearful our heartbeat (circulation rate) increases and if we feel relaxed it decreases. An example of humans using the sense of rhythm is when we exercise we listen to fast music and when we want to relax we listen to slow music. We automatically respond to the external rhythm of the music.

For children with ASD, the use of music in therapy can help the child organize thought patterns, speech development, and motor skills. Rhythmic entrainment techniques allow the child to connect their body rhythm, but also allow them to connect non-verbally with others. Music can be used to help a child with ASD calm down. Music taps into the emotions of the child, so listening to certain songs or music may help alter the mood of the child with ASD in a positive way. Attention skills are developed through music where a music therapist uses music to target attention and impulse controls goals in the treatment of a child with ASD. The section of the brain that is used to listen to and express speech uses the same neural circuits in the brain as music. Thus, music therapists can use music to help a child develop better communication skills.

Music is an excellent mnemonic device, which enhances learning. It assists in getting the brain to remember, memorize and recall information. Music takes the original information, uses it in an easy more appealing manner such as a rhyme or phrase and the brain stores it as an easy reference for a larger piece of data in the brain (Kern, P., & Humpal, M. 2012).

## CHAPTER 3: METHODOLOGY

### 3.1 Design and Subjects

A portion of my background is in music as I am an audio engineer (live and not studio work) and production manager. I have several friends who have children with ASD, so I am aware first hand of the pressures and challenges this disorder presents to a families everyday life. I also participate in a non-profit organization called Jaden's Voice, which seeks to enhance the lives of child with ASD and their families. Since one of my passions is music, I wanted to choose a topic that would sort of meld the two worlds. I am a firm believer that music is an essential part of our lives and serves a much greater purpose then just entertainment. Subsequently, I was curious of the impact music could have on the life of a child with ASD. Intuitively I felt it would have a positive impact, but was unaware of the ways it could improve their lives and serve as a treatment. I set out to answer the question, "Is music and music therapy a viable and effective treatment for children with ASD?" Currently the families I know with children affected by ASD do not use music therapy in their treatment but I would like to introduce this option to them.

I approached this thesis using qualitative methods. The design of this study was to use interviewing as a portion of my methods used to gather information regarding the effectiveness of music therapy in children with ASD in order to answer my primary research question. The interview questions (Appendix B) were designed by myself and used to seek the professional opinions of music therapists regarding approaches and methods used while servicing children with ASD.

My plan for this research consisted of collecting data directly from the music therapists. I interviewed four practicing music therapists, who are currently working with autistic children in the greater Philadelphia region.

On two of the occasions, in addition to interviewing the therapists, I observed several music therapy sessions through out the day, in order to gather up-close information. I did not interact with or interview the children, as this presented clearance issues, etc. Obtaining these clearances were not pursued due to the timeframe of the research and the thesis process. After observing, I interviewed the therapists regarding their professional opinion on what was witnessed, as well as insight on the various approaches that have proven successful with the children with ASD.

One of the differentiators between children was verbal and non-verbal. The age range of the children with ASD I observed ranged from 9 years of age to 12 years of age. Each interview with the music therapist was recorded (audio only), transcribed and coded to extrapolate the necessary data useful to the study. The process of collecting the data involved the discussion about the child's "starting point" at the beginning of a specified timeframe, the methods used in the therapy sessions, and then I analyzed and discussed the results. Interviewing the therapist about the various methods and approaches used in music therapy allowed me to glean further insight into music therapy's effect on a child with ASD. An additional method used to gather data in this research is the use of surveys. Due to time constraints, I was not able to interview the parents. They were surveyed to investigate if their belief was that the therapy is effective from an everyday viewpoint, lending to the idea that the therapy is valuable because transference of skills being developed is occurring.

I requested that the music therapist distributes the surveys for personal confidentiality purposes. An invitation letter (Appendix A) was included in the distribution email from the music therapists. The surveys were then collected by the music therapists and returned to me after a specific amount of time (approx. 7-10 days). Although, I am unaware of the number of parents who received the survey, the number of surveys returned to me was nineteen.

### 3.2 Data Collection – Observation and Interviews

I visited and interviewed four different practicing music therapists and observed music therapy sessions during two of the site visits. The observations were informative because they allowed me to witness the ideas and concepts previously read about in action. During the observations, I did not interact with any of the children. A few of the children were initially distracted by my presence, but the therapist was able to move on with the session and refocus the attention of the child.

During these observations, I was able to witness examples of the diversity and uniqueness of children with ASD. Each child was on different points on the autism spectrum. I learned how the use of music served as a non-threatening medium for learning and developing skills to gain proficiencies in order to function successfully in life. The therapist applied different approaches during the session, all while having a specific goal in mind for the session in working with the children. I learned how the child gained confidence in successfully completing a task. For example, one child whose verbal skills were limited was able to communicate effectively with the music therapist using an electronic device (iPad).

At the beginning of the session the therapist greeted the child enthusiastically and the child responded in a like manner. The therapist threw her hands in the air while smiling and shouted the child's name. The child responded with a huge grin and began jumping up and down while walking towards the therapist. The iPad was handed to the child so that he could respond to the therapist's question about what instrument he wanted to play today. The iPad is equipped with an application called Proloquo2Go. This application, and several others, is used to assist children with ASD with their communication skills. Proloquo2Go is a communication aid with colorful icons placed in button like interactive spaces on the iPad. These "buttons" represent words the child can press to communicate a word or an entire sentence. Children who can type can use the application's text-to-speech feature. Proloquo2Go is customizable to include personal pictures and voices to make its use more personal to child and family.

A child with ASD can become very frustrated if their ability to communicate thoughts and emotions is limited. This can lead to behavioral problems and inappropriate behavior. The use of Proloquo2Go can relieve those frustrations and aid in effective communication. After showing the therapist that he chose the drum, they began an exercise that appeared to be a type of "call and response" game. Essentially the therapist would play a rhythm pattern and the child repeated the pattern. This exercise helped develop the child's ability to follow instructions, increase patience (a challenge of children with ASD) and foster teamwork (increasing social skills). It teaches the child certain pragmatic skills such as turn taking. The therapist shared during the interview that she often holds group sessions where she uses music to improve social interaction

and communication. This will lead to increasing each child's social adaptation proficiencies as well. This is very important to the child's quality of life for this will improve the parent-child relationship. The use of music masquerades as a game but it is actually positively impacting the development and social skills of the child. During this particular session the therapist applied ABA principles such as positive reinforcement after the child accomplished a task.

During one of the sessions, there was an unanticipated event. One of the children had a breakthrough during the session. The therapist was working toward a specific goal with the child, and he didn't seem very focused on the task at hand. After about ten minutes of unsuccessful attempts, the therapist went into her closet of tools; she pulled out two very colorful scarves. When the child saw the scarves, his face immediately lit up. Seeing this change, the therapist began to explain again the task she wanted him to do while waving the scarves in time with the music that was being played, and he began to pay attention. The therapist gave one of the scarves to the child, and he began to play with it in time with the music and exclaimed, "Wow, these are fun!" Ordinarily this would not be a huge deal, but I later learned that this was a milestone for the child. The reason being the child had never spoken before that moment. The occurrence was very powerful. It was a first, and the special meaning of this event was the child's father was in the room during the session to witness the entire thing.

Music is used as a conduit to develop language. All four therapists interviewed expressed how the use of music albeit rhythm, melody or harmony develops language and additional skills in children with ASD. During a particular session, the therapist used singing to assist in the development of



speech. This method in Music Therapy is called Melodic Intonation Therapy (MIT). This method is defined as a treatment that uses the musical elements of speech (melody & rhythm) to improve expressive language by capitalizing on preserved function (singing) and engaging language-capable regions in the right hemisphere (Research in Autism Spectrum Disorders 1, 2007). This is often used with stroke patients but is beneficial to children with ASD.

The therapist had the child sing a phrase while using an associated movement. This maps the sound to the action for the child's brain. Utilizing this method adds value to the child's everyday life because it can be practiced at home. This can allow for simple communications between the child and other family members using phrases such as "more please", "thank you", "hello", "goodbye", etc. The repetition of this method further engages and strengthens the brain's pathways synonymous with muscle memory. Music therapy approaches and methods are used to fortify the cognitive function of the brain.

### 3.3 Data Analysis

I recorded the data received, transcribed, reviewed and coded it to obtain common ideas and concepts shared by the interviewed music therapists. The results were analyzed to determine if music therapy is a viable treatment for children with ASD. The results were also analyzed to highlight important methods and approaches being used in the field of music therapy as it relates to treating children with ASD.

## CHAPTER 4: RESULTS

There were several common threads amongst the interviews with the music therapists. Each therapist shared that their approach to treatment with a child with ASD varied based on the needs of the child at the time. It also depends on the therapist; each therapist is different although they all share the core fundamental education and practices. The therapist can draw from various educational classes including science, health, anatomy, physiology, psychology of music development, psychology, and special education. The methodology regarding approach was to allow the child to lead the session and be guided by the therapist as long as the session is fun. The therapist determines which approach or method to use for that specific session once they see where the child "is" for the day. Each therapist stated that it is somewhat of a trial and error basis, to conclude which methods works for each child. All the while the therapist is keeping in mind a goal or outcome about the developmental skill that needs to be addressed in the child's overall plan of treatment. The therapist is not treating the child blindly; they are trying different approaches pulling from their bank of knowledge in the therapy field, which includes music. This technique supports the often-used non-structured plan approach of therapy since music therapy draws from a variety of philosophies and techniques. The specific plan of action comes into play based on the needs of the child.

I discovered through the interviews that the therapist is conscious of the balance between the child running the session and being able to follow instruction and guidance from the therapist. The rationale for giving the child a lot of control during the session is because generally they do not have a lot of

control in their everyday life. This is often a contributing factor for behavioral issues that manifests as the child may be attempting to assert control wherever they are able.

Once the method or approach for the session is determined the therapist will proceed as the child leads. There are times a particular method works in more than one developmental area at a time. When a therapist chooses to work on communication skills, this will also work on social engagement, social skills as well as the ability to focus and pay attention. The use of music can be an effective tool or used as a coping mechanism for the child, assisting in self-regulation. Self-regulation is the ability to calm oneself or to manage emotions (Daniel Goleman, 2016). The goal of music therapy is not to master an instrument; it is the use of music to develop the other skill sets. One therapist interviewed believes that there is a crossover between music therapy and music education, though. Although the therapist is not teaching piano, for example, the acquisition of this type of skill set correlates to a portion of confidence building for the child. For example, if a child is a perfectionist and on the spectrum he/she may experience anxiety when tasks are not done "right". The therapists can take the focus off of the task but instead focus on coping with the anxiety challenges. The child can then achieve things within the educational task mindset but also within the therapeutic boundaries.

As with any therapy, it is important for a music therapist to build trust with their client. Lack of confidence can be additionally difficult with a child on the spectrum just because of the nature of ASD. Each therapist expressed the need to build trust in treating the child with ASD. The therapist has to be very respectful of what the child wants to do and allow them to do it, as long as he or

she is not hurting himself or herself or anyone else. The amount of time it takes for a child to become comfortable with the therapist is as individual as the child themselves; it varies.

Another common theme throughout the interviews was parental reinforcement to assist in the transference of skills. The primary goal of music therapy is to enhance the child's development such that they can transfer those skills into their everyday life. This objective will inherently improve their quality of life as well as their families. The parent should be involved in the sessions if possible, but at the very least meet regularly with the therapist (typically after the session) and discuss any concepts and exercises that they can execute at home to reinforce what occurs in music therapy. For example, in one session towards the end, the therapist began to play a specific song, which indicated, to the child that it was time to clean up. As the therapist sang and played the song on the guitar, the child walked around the room and picked up the toys scattered throughout the room and placed them in the toy chest. This example can be easily duplicated at home by a parent or the child's family to motivate the child to clean up after his/herself. The therapists shared with me that the recorded version of the song was provided to the parent towards the end of a session.

I learned that each session with a child with ASD is unique, and the therapist allows the child to dictate the direction of the session within reason. The therapist has an initial goal in mind for the session, but the session may take a different direction if the child is not having a "good" day. If the child is seemingly uncooperative, the therapist understands how to explore the source and deal with the issue that may be challenging them at the moment. There is no script in music therapy; the therapist quickly assesses where the child is at the

beginning of the session then pulls from their bank of knowledge as a trained therapist to move towards the desired outcome. Although the sessions I observed were one on one, the therapists shared that music therapy improves the child's social interaction when in a group setting. It teaches the child how to take turns and work together as a team. For example, each child can take a segment of a song and play a beat on a drum. The therapist can have the parts played simultaneously or each child can take a part.

## CHAPTER 5: EVALUATION OF PARENTAL SURVEYS

### 5.1 Overview

The overall consensus from the distributed surveys to the parents who are served by the interviewed Music Therapists was positive. The surveys showed that the children with ASD have been impacted in a positive way. There were positive changes in the communication skills, levels of anxiety and the child's focus and attention at home. Four music therapists participated in distributing parental surveys amongst the clientele at their respective practices. The participants (N = 19) are the parents of the children with ASD, who are receiving music therapy services. Participants completed a written survey designed by myself "Parental Observations of Music Therapy's Impact On My Child With ASD". The objective of the survey was to solicit information on the impact music therapy was having on children receiving music therapy services. A copy of the survey is included in Appendix C. Figure 1.2 excludes 3 questions.

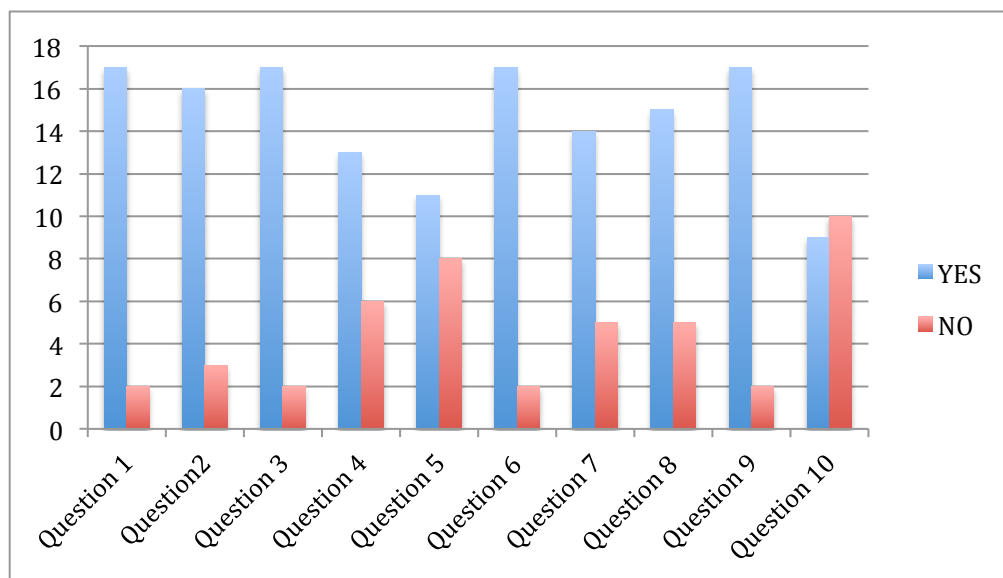


TABLE 1.1 – Parental Survey Responses

The responses for questions 11 through 13 were open-ended and were not included in Figure 1.2. The responses the parents shared varied. The most common responses to question 11 pertaining to a child's main challenges prior to music therapy (see Appendix C) were frequent meltdowns/tantrums, self-injury and destructiveness. The most common responses to question 12 pertaining to the child's most challenging areas were behavioral, communication, lack of focus and attention and socialization. Lastly, the most common responses to question 13 pertaining to noticeable effects of music therapy on the child were increased focus and attention, increased ability to follow instructions (help with light chores, get ready for bedtime, ease of morning tasks), increased communication skills (express wants and needs more clearly), decreased frequency of meltdowns and increased socialization (get along better with the parents, siblings, and friends).

## 5.2 Conclusions

The results of the surveys conveyed the overall message that the participants believed that various skills and abilities improved as a direct result of music therapy. The results indicated that observed changes in the child's overall functional skills, specifically music, social, communication and motor skills improved. Music therapy's positive effect on the surveyed families agrees with the premise that it is a viable and effective treatment for children with ASD. The parents shared that several positive changes have taken place since the participation in music therapy has taken place. The children have the ability to communicate better in the home and school. The children now have an increased capacity to take and follow instruction without becoming frustrated and potentially have a meltdown. Many children with ASD exhibit behavioral

problems and inappropriate behavior that can be triggered by various things. Their inability to communicate often results in that type of behavior, which is sending coded messages about things that may be important to him/her. The parents surveyed experience this type of behavior in their everyday lives. According to the small sample, music therapy is aiding in improving their quality of life.

### 5.3 Limitations

A limitation of this research is that there is only a partial sample of cases, during which I did not interact with the children at all. I only had direct contact with the music therapists and indirect contact with the children's parents. Autism Spectrum Disorder (ASD) is a very complex condition. Each manifests the symptoms of the disorder in various ways; thus, the symbol for the autism is a puzzle piece. An individual can be placed or positioned somewhere on the spectrum, but treatment and improvements are unique to the specific child. Time is also another potential limitation of this study. The research had to be conducted within a limited amount of time due to the time constraints of graduate school. There has been an allotted timeframe for completing the thesis, so the research portion of it has to be done efficiently and as effectively as possible to write the report. For this research I did not sample adults with ASD. I was not able to conduct a longitudinal study, but rather relied on parents and therapists for their qualitative assessments of the children's progress.

The limitation of the survey is the sample size of the participants polled. I had a limited amount of time as well as no knowledge of the number of surveys distributed. I did not have access to the clientele list of each Music Therapist;



therefore, I am unaware of the number of individuals who may have received the survey versus the number of actual participants. A number of the questions in which the parent's options were not "yes" or "no" went unanswered, this is an additional limitation as this presents incomplete data from the actual number of participants. I did not interact with or interview the children, as this presented clearance issues, etc. Obtaining these clearances were not pursued due to the timeframe of the research and the thesis process.

## CHAPTER 6: SUMMARY AND CONCLUSIONS

Data from this study supports the truth that music therapy is an effective form of treatment for children with ASD and can be used in conjunction with the more widely used treatments for ASD that include speech and language therapy, behavioral therapy and occupational therapy. The use of music therapy as a treatment for ASD enhances the development and progress of the child particularly since children with ASD often are gifted in the area of music.

This study found that music therapy has a tremendously positive impact on children impacted by autism. Autistic children respond to music and its use in therapy in the same manner as non-autistic children respond to music. I found that music therapy increases appropriate behaviors and decreases inappropriate ones. It increases vocalizations, verbalizations, gestures and vocabulary comprehension, increases communicative actions and engagement with others, enhances body awareness and coordination, and reduces anxiety.

I found that through music therapy, a child's communication skills improved by pairing music with actions, and using repetition to map certain music sounds to action. This exercise may help a child with ASD to develop their verbal communication skills.

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## Appendix A: Email Survey Invitation

Danielle M. Lewis  
806 Whitpain Hills  
Blue Bell, PA 19422-1320  
[dml22@drexel.edu](mailto:dml22@drexel.edu)  
610.724.7483

Dear Parent,

I am a graduate student in Drexel University's Arts Administration Program. I am conducting research on the impact of using music therapy as a viable treatment for children with Autistic Spectrum Disorder (ASD). I have interview your child's music therapist about various approaches used to treat children with ASD. No specific information regarding your child was shared so no confidential information will be used in my thesis. Please see the attached link which will direct you to a survey in which you will be asked a few questions (10) regarding music therapy's impact (if any) on the development of your child. This information will be used in the body of knowledge being acquire to develop my thesis, " Is Music Therapy A Viable and Effective Treat for Children Who Have Autistic Spectrum Disorder".

You have received this email because you have been contacted by your child's music therapist and consented to participate in this brief survey. The survey should take about 5-10 minutes of your time. I would truly appreciate if you could complete the survey within 5 days of receipt. Your responses will remain anonymous and confidential. Please feel free add additional comments or insight as you see fit.

If you should have any questions regarding this survey, please feel free to contact myself at the email address or telephone number listed above.

Thank you in advance for your time and participation in this survey.

Best Regards,

Danielle M. Lewis

## **Appendix B: Questions Used During the Music Therapist's Interviews**

25. Do autistic children respond to music/music therapy in the same manner as non-autistic children?
2. Does music therapy address more than one developmental issue? simultaneously?
3. What is the overall effect of music therapy on an autistic child?
4. How does music impact the social and emotional development of autistic children?
5. What is its impact with respect to social behaviors, increases focus and attention, increases communication, reduces anxiety, and improves body awareness and coordination?



### Appendix C: Parental Survey

1. Do you believe music therapy has benefited your child?
2. Is your child verbal?
3. Has your child's social skills improved since receiving music therapy services?
4. Has your child's motor skills improved since receiving music therapy services?
5. Has your child shown interest in playing an instrument since receiving music therapy services?
6. Have you seen any improvement in your child's behavior?
7. Have you observed a reduction in the number of meltdowns experienced by your child?
8. Has your child's anxiety level seem to be reduced?
9. Has your child's focus and attention improved since receiving music therapy?
10. Do you use music in the home for reasons associated with ASD and your child?
11. What are the main challenges you experience with your child prior to participating in music therapy?
12. Which areas is most challenging for your child?  
(On a scale from 1 to 10 – 1 = least challenging, 10 = most challenging)  
Behaviorally (social, etc.)?  
Emotionally?  
Sensory perspective?  
Focus and attention?  
Communication?

Reduce anxiety?

Improves body awareness and coordination?

13. What are the noticeable effects of music therapy on an autistic child?

(On each of the above areas- if you can see/observe any)