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An Integrated Music Therapy Method for Children and Adolescents with ASD and Trauma

Capstone Thesis

Lesley University

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Music Therapy

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Abstract

This thesis explored the integration of two theories used in music therapy. A literature review of vocal psychotherapy (VPT) and neurologic music therapy (NMT) was conducted. In the literature reviewed, neither theory alone meets the common needs, I have observed, of children and adolescents diagnosed with autism spectrum disorder (ASD) and a known history of, or current trauma experience. The most significant insight gained from the literature reviewed are the different client needs that each theory approaches. Neurologic music therapy (NMT) techniques are implemented to heal the diseased or injured brain. Vocal psychotherapy intervention can heal the injured soul. The client with ASD and a history or ongoing trauma experience has an injured brain and an injured soul. An integrated method was explored in an alternative, therapeutic elementary and middle school setting, with children ages seven years old to 13 years old. Two vignettes are discussed to describe how the application of the integrated theories as a method of music therapy met the needs of two clients with ASD and trauma experiences. This integrated treatment method approached client goals for emotional and physical regulation, cognitive training, sensory integration, auditory perception, expressive and receptive communication. There is a need for more exploration of this method of music therapy to establish other combinations of VPT and NMT techniques for clients diagnosed with ASD and trauma experience. Further development and exploration of this method is recommended with the same population and other client populations related to the holistic approach.

Keywords: music therapy, vocal psychotherapy, music psychotherapy, neurologic music therapy, autism spectrum disorder, trauma, trauma informed

An Integrated Music Therapy Method for Children and Adolescents with ASD and Trauma

Approximately one year ago, I was conducting independent research for literature on music therapy treatment for patients diagnosed with autism spectrum disorder (ASD). I remember wondering if neurologic music therapy (NMT) for those with ASD might be complemented by vocal psychotherapy (VPT) and vice versa. That thought occurred to me again, at my current internship, during private music therapy sessions, especially with the clients that were diagnosed with ASD and a history of trauma or had an ongoing trauma experience.

The literature reviewed here was inspired by my past interests of music therapy for children with ASD, and my current internship practice with children and adolescents diagnosed with ASD and had a history of trauma or experienced ongoing trauma. Based on the literature I reviewed, I did not discover an integrated music therapy method for treatment of children or adolescents diagnosed with ASD and a history of trauma, ongoing present, or enduring trauma. As the literature review demonstrates there is much support and treatment recommendations for those who are diagnosed with ASD or struggle with trauma or trauma related issues. The literature review inspired the exploration of integrated music therapy method.

This capstone thesis explores an integrative music therapy approach, as a clinical method for a holistic music therapy treatment of children and adolescents diagnosed with autism spectrum disorder (ASD), who also have a history of emotional or physical trauma. I explored integration of two theories: neurologic music therapy (NMT) and vocal psychotherapy (VPT). I have explored this integrative music therapy approach through my current music therapy internship site, which is an alternative, therapeutic elementary and middle school setting. Based on the literature I reviewed, I believed the development of an integrated method using NMT techniques

and VPT interventions would benefit children and adolescents diagnosed with ASD and a history or ongoing trauma. The music therapist equipped with knowledge of this population's needs and this method can intervene when these clients are experiencing dysregulation related to trauma or ASD. As the literature review demonstrates there is much support and treatment recommendations for those who are diagnosed with ASD or struggle with trauma or trauma related issues. After considering the literature reviewed and attending a NMT training, it is my informed opinion that music therapist or any other professional practicing NMT without a trauma informed perspective could activate emotional distress for a traumatized client. For this capstone thesis I have chosen the option of developing a method. My method is an integrative approach to treatment involving two theories, neurologic music therapy (NMT) and vocal psychotherapy (VPT).

Literature Review

It is important to have a clear understanding of the key elements that informed this thesis. The literature review will summarize the dynamic elements for understanding the influence on this integrated approach to music therapy treatment of this population. For a more in-depth understanding of specified themes, subjects, and topics presented. I refer the reader to the list of references that informed this review and development method.

In the introduction of this thesis, key literature has already been introduced, this section will expand and build on this literature. This section will provide a review of the literature that has supported the process of developing this integrative music therapy approach, as a clinical method for clients with ASD and trauma. It will provide a more in-depth review, placing this literature in a historical context, focused on VPT, NMT, ASD, and trauma.

Drawing Connections

Vocal psychotherapy is an approach that is complemented by NMT. Wan, Rüber, Hohmann and Schlaug (2010) explained that in many neurological conditions that affect the client's speech, singing has been shown to facilitate client's ability to correct wording that is difficult. This is due to the pathway the brain uses when singing units of sound. Singing is a valuable intervention. Wan, et al. (2010) explained that singing could assist in eliciting the sound motor mapping portion of the brain, effective when working with clients who are struggling to form words. Since singing is elongated words, the patient has to opportunity to correct their own sounds. To aid in sound motor mapping and correcting speech patterns, there have been interventions that have added hand tapping [used in NMT techniques]. There is growing importance around testing new interventions, so that one can pick interventions to match patient needs. Another important aspect of testing an intervention for effectiveness, is being able to pick the best intervention for a patient and being able to look ahead and predict how recovery will go. Practical application of interventions such as singing to, with, or for a client is important part of practice, especially when the therapist identifies with the vocal psychotherapy approach. Austin (2008) emphasized the therapeutic benefits of clients singing; however, singing to someone does not provide the immune system, neuromuscular, or physical and emotional benefits of the person singing. This explained why vocal psychotherapy complements NMT work. There are relational benefits to singing with your client, which Austin pointed to: When she sings with her clients there is a noticeable difference in their emotional expression or emotions that were blocked. Austin stated, "the process of finding one's voice, one's own sound, is a metaphor for finding one's self" (p. 21). Although NMT and vocal psychotherapy have scientifically proven health benefits, the emotional connection, the self-discovery, and relational

benefits of music should not be forgotten. A client population can attract music therapist to specific approaches like NMT and VPT.

According to Thaut et al. (2014) interventions or techniques used in NMT were developed from a clinical database, thus continued growth and change is expected. Thaut et al. wrote “the clinical core of NMT consists of 20 techniques that are defined by (1) the diagnostic treatment goal and (2) the role of the music—or mechanisms in the processes of music perception and music production—for achieving the treatment goal” (p.2). The *Neurologic Handbook of Music Therapy* (2014) cover these techniques in detail. One of the most widely used interventions or techniques used in music therapy is improvisation among many theories as well as NMT.

Autism Spectrum Disorder

Autism spectrum disorder (ASD) is described in the DSM-5 (2013). For brevity, ASD is marked by difficulty in social communication and interactions. These social difficulties include “deficits in social reciprocity, nonverbal communicative behaviors used for social interactions, and skills in developing, maintaining, and understanding relationships” (American Psychiatric Association, p. 31). DSM-5 criteria that is relevant to the diagnosis of ASD and will be addressed in music therapy are client behaviors that are “restricted, repetitive patterns of behavior, interests, or activities” (American Psychiatric Association, p. 31). The DSM-5 (2013) clarifies that diagnosis can be based on historical symptomatic information. Due to client development, symptoms can change, therefore all symptoms do not have to be present (American Psychiatric Association, p. 32). As a music therapy intern supporting and treating children with ASD it is important to understand this population from a diagnostic and developmental standpoint. Corey et al. (2018) reports that to have an effective group of children

in a school, one must “acquire a working knowledge of the developmental needs of those who will be in your group” (p. 380).

When working with clients and family it is important to consider current preferred language. Hardy and LaGasse (2018) asserted that many in this population prefer to be addressed as *autistic* rather than being address in the person-first language (p. 186). Person-first language uses language that names the client first not their diagnosis. For example, person-first language refers to the child as, the child with autism; rather than, the autistic child. For clarification this paper will address this population with person-first language, while in a session the client would be addressed in their preferred manner. Hardy and LaGasse (2018) addressed two other labels used for the ASD population that are considered offensive and should not be used which are *high functioning* and *low functioning* (p. 186).

Neurologic Music Therapy

Neurologic music therapy is an evidence-based treatment that Dr. Michael Thaut and his colleagues have researched, developed, and organized over the past twenty years. Dr. Thaut and his colleagues have collaborated their knowledge in their book, *Handbook of Neurologic Music Therapy* (2014). In a historical context, Thaut, McIntosh, and Hoemberg (2014) explained that music therapy researchers and clinicians, neurology, and brain sciences, in the late 1990s, began the classification of clusters of evidence into a system currently recognized as NMT techniques. They classified twenty evidence based, NMT techniques to meet diagnostic treatment goals through music perception and music production (Thaut & Hoemberg, 2014). Thaut and colleagues provide and lead a comprehensive and intensive four-day NMT training for student music therapists, board-certified music therapist, and other clinicians through The Academy of Neurologic Music Therapy. The Canadian-based training academy is based on the twenty

classified techniques, and in memory of Robert F. Unkefer (1921-2002), an American music therapist since 1950, educator, and author (The Academy of Neurologic Music Therapy, n.d.). Interested in practicing NMT techniques, I enrolled for the four-day NMT training. The training provided demonstration of the twenty NMT techniques, discussions based on scientific evidence, and participants with the opportunity to practice techniques with a NMT academy trainer. After the training participants completed an examination (The Academy of Neurologic Music Therapy, February 2021).

After participating in this training, I recognized that I had employed several of the evidence-based techniques in my internship practice. For example, if I noticed that a child could not cross their midline, I would move the instruments to a place that the child had to cross midline to reach them. I learned at the training that this is Therapeutical Instrumental Music Performance (TIMP). Mertel (2014b) described TIMP as one of three motor rehabilitation techniques in NMT, “TIMP utilizes musical instruments to help patients to exercise impaired motor function and regain functional patterns of movement” (p. 116). Mertel explained spatial placement of the instruments are designed to help the patient retrain functional movements and avoid patient compensations that result in unhealthy movement skills. The main goal being to increase the patient’s strength, endurance, and motor control (p. 116).

Oliver Wolf Sacks (1933-2015) was a neurologist, professor of neurology and psychiatry, writer, and a musician. Sacks (2007) began to write about the profound effects of music in 1966. Sacks had observed the effects of music in his patients with Parkinson’s disease. He wrote about these in his book *Awakenings*, published in 1973. Sacks pioneered some of the core beliefs and established benefits of today’s evidence based NMT techniques. Sacks (2007), discussed the impact of music on the brain, he considered musical elements of rhythm and melody, and their

positive impact on his patients' movement and speech. Another author that examined how the brain processes information when relating and interacted with music was Daniel J. Levitin in his book *This is your Brain on Music: The Science of a Human Obsession* (2006). Levitin examined the neuroanatomy of the human brain and how music impacts the brain.

Hallmarks of modern NMT techniques use rhythm and melody to address movement and speech and language goals for patients. Dr. Sacks literature approached his patient's healing with music as the mysterious healer, whereas Dr. Thaut viewed music as the resource to an evidence-based result for patients.

Vocal Psychotherapy

Vocal psychotherapy was developed by Diane Austin. Austin's (2008) approach focused on self-expression and self-discovery through singing. Austin (2008) explained that "vocal psychotherapy is the use of the breath sounds, vocal improvisation, songs and dialogue within a client-therapist relationship to promote intrapsychic and interpersonal growth and change" (p. 13). Austin's VPT approaches the clients physical, psychological, and spiritual needs through singing. Austin discussed VPTs foundations in psychology, traumatology, addiction treatment and psychodrama (2008).

Vocal psychotherapy (VPT) developed by Diane Austin is a theory in music therapy that is based on psychoanalytic theories in psychotherapy and the use of the human voice for self-discovery and healing. In Austin's 2008 book, *The Theory and Practice of Vocal psychotherapy Songs of the Self*, she describes how her experiences from childhood and her work as a voice teacher, lead to her clinical work and ultimately developing VPT. Austin grew up in a musical family and recounts the experiences of sleeping under a piano, while her father's jazz trio played music, she described how she "awoke in a cocoon of rhythm, melody and harmony" (p. 11).

Austin reported “I must have felt held by the music because throughout my life I have turned to music whenever I have felt lonely or unsafe” (p. 11). Vocal holding is a significant intervention and Austin’s concept of holding is demonstrated in the method and results section of this thesis. Austin discussed how singing supported her emotional needs and her self-discovery. She attended Emerson College in Boston and studied Theatre Arts, and recognized as she looked back how therapeutic song, dance and dialogue were all part of her development of her professional self. After college she moved to New York and after working in musical theatre she recognized her desire to know herself more and entered Jungian analysis, which ultimately informed how she developed VPT. She described her experience of Jungian analysis, “I learned that change was slow and painful, but possible, and for me, inevitable” (p. 12).

Austin (2008) began teaching voice lessons and this was when she started to recognize the power of the human voice as a means for healing. Austin recognized that her students were not there for singing lessons as much as they were searching for “permission to feel” (p. 12). She described how singing brought up associated childhood experiences for some of her students while other students were emotionally numb. Her students discovered that singing was a safer way to tap into their feelings and emotions. This is related to my integrative music therapy method because I have noticed children are open to talk about their trauma, often after singing or vocalizing. This was demonstrated by an adolescent client, at my internship site. The client sang a preferred song, then opened with a verbal and created an art image to explain a recent disturbing dream.

Austin’s therapist suggested music therapy to her when she described the self-discovery and healing that she witnessed in her voice students. In 1986, she completed a degree from New York University with a Master of Arts in Music Therapy. During her time at New York

University, Austin worked with several different populations those that were “blind, autistic and developmentally delayed children, psychiatric adults, women in prison, and battered women and children” (p 13). Based on her work with these populations, Austin found that singing was the most impactful with every population. Austin received her doctorate in music therapy, and wrote her book on VPT which describes as a “culmination of more than 20 years’ experience as a music psychotherapist in private practice with adolescents and adults, during which I have been practicing and refining my own model: Vocal psychotherapy” (p. 13).

Austin’s personal story of self-discovery and her years of clinical experience supported the use of VPT for children with ASD and trauma. As a music therapy intern, I have noticed that individuals with ASD and trauma both often struggle to discover their self. The use of voice has proven to be the most beneficial for my clients. I witnessed the most therapeutic change in my clients when they were singing or vocalizing. This change is possible because singing can put people at ease. Change happened when the individual was ready for it and when that individual felt able to be themselves. An individual can most often be their self when they feel more at ease. According to Austin (2008) taking a scientific perspective she states that “research has shown that singing improves our health” (p. 21). Austin sites research from the US, England, Canada, and Germany that have discovered “singing can improve one’s mood by stimulating endorphin release. Singing is also able to relieve stress and boost the immune system” (p. 21).

Health benefits of singing take place only when the client is singing, not when they are listening to someone sing. Austin (2008) referred to a research study conducted at the University of Frankfurt in which scientists had choir members sing Mozart’s Requiem for an hour. The researchers then had the choir members return a week later to listen to a recording of the Requiem without singing along. The results of this research showed when the choir members

were singing their blood tests revealed significantly increased concentrations of immunoglobulin, which are proteins in the immune system that work as antibodies. The blood test also revealed that the choir members had an increase in hydrocortisone, an anti-stress hormone. Often clients can experience feelings of stress related to singing in front of others. Depending on the client's developmental ability, it may be helpful to explain how and why singing improves not only emotional and physical health but also neurological health. A helpful way to explain this to clients may be to use Austin's (2008) words "your ear and your brain tend to find your singing pleasurable, even if others do not agree" (p. 21).

Trauma

Trauma, for the purpose of this thesis is defined as a traumatic event or enduring experience, that the child has lived through or is currently experiencing. The traumatic experience is out of the child's control and they will often have difficulty expressing or explaining the trauma. Basham (2016) explained that "trauma refers to an event or an experience that involves the imposition of severe (or traumatic) stressors—exposure to actual or threatened death, serious injury or sexual violation" (p. 484). Music therapy is beneficial to clients with a history of trauma because music can be used as a form of nonverbal expression. Techniques such as externalizing emotions through music can be helpful for children or adults who have experienced trauma. Austin (2008) explained the powerful benefits of clients singing. Austin said, when the client sings, they breathe deeply which slows the heartrate and calms the nervous system. She added that singing produces vibrations that internally break up and release blocked energy to release feelings and provide a natural flow for a state of equilibrium in the body. Austin reported that for those who hold a traumatic experience in their bodies, singing provides the opportunity to express what had been inexpressible, thus giving voice to their feelings, which

allows an emotional release due to the effect of the music, lyrics, memories, or other connections.

In a podcast, Bessel van der Kolk said trauma lodges in the body. van der Kolk explained trauma is an event or experience that overwhelms the central nervous system and alters the way we process and recall. van der Kolk explained that during a traumatic experience or event Broca's area of the brain, which functionally produces speech, shuts down. This explained is why trauma victims are often unable to talk about the trauma, and the reason talk therapy alone is not enough trauma treatment (Tippet, 2013).

Some individuals who are or have been a trauma victim may receive a DSM-5 diagnoses. Some of the common American Psychiatric Association's (2013) Diagnostic and Statistical Manual of Mental Health Disorders diagnoses are Posttraumatic Stress Disorder (PTSD), Acute stress disorder, Adjustment Disorder, Reactive Attachment Disorder, Disinhibited Social Engagement Disorder, or other specified, or unspecified trauma-and stress-related disorders (5th ed.; DSM-5). An individual does not have to receive an official diagnosis to have a known history or ongoing trauma. When discussing trauma in this thesis, trauma refers to either a traumatic event such as rape or ongoing trauma in the home such as neglect or abuse.

Psychotherapy

Yalom (2017) supported neurology in psychoanalytic therapy. Yalom encouraged new therapist to embrace neuroscience research in the field of psychotherapy. He acknowledged that there is resistance, among his colleagues and many therapists who have little background in biological sciences. Yalom reported that some of this resistance is related to their background and opinions related to the nature verses nurture arguments. He explained that psychotherapist fear that their field of work is changing and will never be the same again because of the enormity

of research finding in neuroscience. Yalom explained that the field of psychotherapy can benefit from the neuroscience findings. Neuroscience is not taking over the field of psychotherapy, rather it can enhance our current practice. Yalom stated “new scientific advances are making it obvious that the question “nature or nurture?” is obsolete: contemporary neuroscience answers that question with a resounding “both!” (p. 7, P.S. section). Yalom’s position supports my values of an integrative approach, combining VPT and NMT for a more holistic treatment for children and adolescents with ASD and trauma.

Holistic

When music is involved the whole person is involved, the emotional, mental, and spiritual needs are still present even when music therapists and other clinicians are addressing physical and neurological goals. Levitin (2006) stated that “musical activity involves nearly every region of the brain that we know about, and nearly every neural subsystem” (pp. 85-86). Music is processed in the whole brain; therefore, music therapists and other clinicians using music within the context of therapy should consider the whole person. Petruta-Maria (2015) explained the importance of music therapy in schools, referring to children with special needs,

. . . music-therapy play[s] a great part in the development of some efficient learning practices and of emotional self-regulation. . . . A good educational system promotes not only a quantitative learning approach, but also training of the whole human being (soul, mind and body), while taking into account the motivations and the individual or group emotional substrate, the development of a spiritual profile, of a good character, of a moral education (pp. 277-278).

Quantitative

This is a review of two quantitative articles that support the use of music for individuals with autism spectrum disorder (ASD) and ASD with alexithymia. Alexithymia has a strong link to (ASD). It is especially prevalent in those with complex ASD.

Allen, Hill, and Heaton (2009) reported on an experiment conducted with adults diagnosed with ASD through interview. This interview was conducted to learn how these individuals experienced music. The comparison of typically developing adults, from literature, of their response to music was used. Allen et al. (2009) reported those with typical development used music for several reasons which included cognitive, emotional, and social reasons. The study showed that the 12 adults with ASD, interviewed, contrasted to way the typically developing adult responded. The interviewed participants with ASD reacted with a more internal response to the arousal, and the typically developing individual responded with emotional words.

Allen et al. (2009) discussed findings related to his studies and others over the past two decades that report the common traits that children with ASD have with musicians that have absolute pitch. This is valuable information for music therapists and expressive arts therapists to understand. In my limited music therapy training, almost 2 years internship experience, with children diagnosed with ASD, I have frequently noticed that these children often have surprisingly exceptional ability to match a pitch when I am singing or playing. This supported the value of using of vocal psychotherapy. Allen et al. (2009) pointed out that several studies have concluded that there is much value in the non-experimental studies of people that have ASD and their engagement with music, especially when there is speech language difficulty like a semantic pragmatic disorder. This supported the use of VPT, for children with ASD. At my internship most of my clients diagnosed with ASD work on speech and language goals with me. I used a variety of vocal music interventions, and not an increased use of expressive language.

The speech language pathologist (SLP) at my internship site has commented on how his clients have improved their speech language goals since attending music therapy.

Allen, Davis, and Hill (2013) focused specifically on how adults with ASD and ASD with alexithymia respond to music as compared to a typically developing adult. This article provided the results from two separated experiments which were in an effort more thoroughly understand the physiological response, the emotional response, and ability in to verbalize the emotional response to music. The article provides visual graphs, charts, and quantitative explanations from both experiments.

Allen et al. (2013) provided evidence that individuals diagnosed with ASD significantly had more difficulty in verbalizing their emotional response to music. When the alexithymia scores were factored in this justified the understanding that the person with ASD did not lack emotions but has an impaired ability to verbalize their emotions. This was demonstrated in comparison to the typically developing individual. Allen demonstrated that there was no meaningful difference in the physiological response to music of the groups. These are outstanding evidence-based results that support the use of music and especially singing for individuals with ASD. At my internship, I have explored dyad work with pre-teens and teens, specifically one child diagnosed with ASD and a neurotypical child. I noticed that often the child with ASD is just as emotionally moved by the music, evidenced by requesting music again or providing a song that shares the exact sentiment for the moment, but is unable to say exactly what they are feeling like the neurotypical child is able to do. This supports the use of VPT and music therapy in general for those with ASD; through my clinical work I have discovered that through examining lyrics with clients; particularly their preferred music and modeling

appropriate emotional responses that over time my clients have been verbally expressing their emotions to their peers, other clinicians, and myself.

Both articles provided a wealth of quantitative evidence for the value of music in treating people with ASD. As evidenced in these articles, people with ASD can use music to understand other people's emotions and ways to express their personal emotions using music and visuals.

Qualitative

This section is a review of two qualitative articles that answered why music is helpful in the treatment of persons with (ASD). Santomauro, Sheffield and Sofronoff (2017) described the difference persons with ASD have in recognizing and regulating their emotions, and the how these difficulties are reflected in anxiety and depression. This article specifically focused on adolescents and young adults with ASD. The investigation findings were collected from the interviews of seven adolescents and young adults with ASD. The interviews included their parents, teachers and psychologists who had experienced the subject's difficulty with emotional regulation. The seven groups reported the triggers of distressing emotions, understanding emotional awareness, ways they tried to regulate emotions, and the significances of distressing emotions. Depression and anxiety were the most frequently reported issues related to the inability to regulate emotions. Both depression and anxiety were perceived as the most experienced distressing issues with the greatest consequences.

Santomauro, Sheffield and Sofronoff (2017) provided a valuable overview for the understanding of emotional regulation difficulties for persons with ASD and those working closest with them. This qualitative study provided a valuable and tangible insight to clinicians and those who work closest with adolescents and young adults diagnosed with ASD and live with difficulty of emotional awareness and emotional dysregulation. Music listening is

mentioned as one strategy used for coping with distressing emotions. Overall, this article is mainly beneficial for the thorough discussion of the qualitative data collected from the participants and their supports who experience emotional dysregulation. One of the limitations that the author reported related to this study was the lack of comparison data, specifically to typically developing adolescents. Further investigation is suggested related to the possibility that the same emotional dysregulations may occur with adolescents with ASD as the typically developing adolescent, only at a higher rate.

Brancatisano, Baird and Thompson (2020) focused on why music is beneficial to those with neurological disorder. The why was answered with an evidenced based discussion of the seven properties of music that interact with brain function. The influence of music on the brain explained its therapeutic value. Brancatisano et al. proposed their Therapeutic Music Capacities Model (TMCM) which addressed the properties of music that make it therapeutic and explained the cognitive, psychosocial, behavior and motor benefits for people with neurological disorders. Some of those disorders are dementia, stroke, Parkinson's disease, and (ASD). Brancatisano et al. supported music's ability to engage individuals emotionally, physically, personally because music has vast and various forms. The qualitative evidence-based framework supported music therapy in the treatment of neurological disorders like ASD.

Santomauro, Sheffield and Sofronoff (2017) and Brancatisano, Baird and Thompson (2020) complemented my hypothesis that music therapy, specifically vocal psychotherapy and neurologic music therapy techniques may complement the specific needs of those with ASD who struggle with emotional awareness and emotional dysregulation.

Literature Elements

In summary, specific elements of the literature reviewed influenced and inspired my desire to develop an integrative music therapy method for clients with ASD and a history of trauma experience or ongoing trauma. When considering individuals with a history of trauma and individuals diagnosed with ASD, both populations could have difficulties expressing, understanding, and engaging with their emotions. Although the reasons may vary, emotions are an area of difficulty for both populations. Observations made at my internship support what the literature stated about emotions and their expression, for both ASD and trauma. I noted that my clients with ASD and trauma, had difficulty expressing or verbalizing their emotions. These clients with ASD and trauma had difficulties with expressing their understanding of other's expression of emotions. However, they were often able to express their emotions as well as their understanding of other's emotions. with their own emotions and the emotions of others. For example, in one of my private music therapy sessions, with a 13-year-old male, diagnosed with ASD and an ongoing trauma experience at home, was dealing with an unpleasant and unanticipated notice. He responded to that stressful situation with a song that conveyed his feelings and the other involved person's feelings. After his song, he simply stated, "the music knows." This reflects the literature here, those with ASD and trauma have difficulty in transition or change, and expression of emotion and the unique need for an opportunity to express the inexpressible as noted related to singing in therapy.

NMT techniques, like therapeutic singing (TS), benefit client cognition, language, and sensorimotor function and were inspirational to me for developing an integrated music therapy method. Johnson (2014) reported that children with ASD can benefit from therapeutic singing (TS) to reinforce goals for vocalization and engagement in therapy and has shown to be a building block for functional goals in speech language and promotes emotional and social well-

being. Johnson added that patients with social and emotional needs can improve their quality of life with TS.

Method

My internship site was at a therapeutic elementary/middle school. Each student/client has individualized services. Individualized services most often include, but are not limited to, in classroom accommodations. On site but out of the classroom therapies include occupational, physical, speech language, and mental health counseling. The students have prearranged transportation services which are either private or a small group dependent on the client or student needs. Students are admitted to this alternative educational collaborative program for short-term or long-term treatment. Some students return to a traditional classroom and others graduate from this program to another alternative high school setting. At this site, I was the only music therapist intern. With cutbacks last year, this site lost their music therapist and their art teacher.

My assessment practice at this internship site was to observe potential or referred clients in their classroom, on the playground or during a break period in the gymnasium, in occupational therapy, speech language therapy, and/or in their licensed mental health care counselor's (LMHC) groups. I reviewed client/student charts. Charts provided information on client medical and mental health history, relevant family medical or mental health, client and family history and culture, client academic and cognitive test results, interdisciplinary team progress notes, and the legal guardian's or parent's desired outcome with site treatment.

Before goals were established with a client, I saw them in one to three private music therapy sessions. My assessment during this period included the client's experience with music, what they expected from or wanted to discover in music therapy (depending on development and

age), and their preferred musical instruments or music and their personal playlist if they had one. For this method development I focused my method development practice on three male students, ages seven to 13 years old, all of which were my established clients, diagnosed with ASD and had identifiable trauma. These three clients had undisputed ASD and trauma according to the literature reviewed.

For this method development I recorded my thoughts, theories, and insight gained during exploration of interventions. My method is primarily informed by the theory of vocal psychotherapy complemented by a NMT techniques. I explored this method development for children and adolescents. After each exploration session, intervention, and observation, I promptly recorded a detailed written process recording, and I recorded and reviewed audio files. In my heuristic research, I embodied these clients vocal and instrumental expressions. This provided a personalized sensory experience through the artistic expressions.

While working with clients at my internship site I recognized commonalities in behaviors and needs of children with ASD. As I further investigated their stories and family life, I learned that they came from a home that involved some type of continuous or past trauma. Children with ASD and a trauma background were exhibiting very similar behaviors. Specifically, I noticed similarities in their intense emotional flooding and violent tendencies. As I observed, their emotional flooding and violent tendencies appeared to have needs associated with each behavior. At times the child presented a behavior such as rocking back and forth, pacing, rubbing the walls, that indicated they had a neurological need. For example, a child that rubs the walls of the room may be seeking proprioception. While at other times the same child hears a peer insulting their teacher or therapist and violently attacks the other child. Here the need is different and often comes from trauma, but the ASD diagnosis complicates their understanding of their own trauma.

Based on my observations of children with ASD and a trauma background these difficulties with emotional expression often make it extremely difficult for the child to navigate their environment and their interactions with peers and adults. For these children, in a classroom setting their inability to express themselves in words can result in flooding, resulting in escalated behaviors and manifestations of aggression. In a classroom these behaviors often result in negative feedback. This feedback can cause children to experience a lack of confidence, something their trauma background often already involves.

Increasing self-esteem is a common goal in music therapy. In a classroom setting, often the escalated behavior of one child, impacts another child to also experience flooding, often resulting in parallel processing between children. Therefore, one child's flooding can result in an entire classroom feeling intense stress and exhibiting potentially undesirable or unsafe behaviors. Often music therapy goals for most children involve building positive leadership skills and increasing positive interactions with peers and adults, however; it is particularly important for children with ASD and a history or present experience of trauma.

Music therapy can provide a place for children to express their emotions verbally or nonverbally, through use of musical instruments and songs. Music Therapy can provide a space for children to increase their confidence by learning to play instruments (sensorimotor) and leading their classmates in a positive way. Children can experience opportunities to lead their classmates in songs, demonstrating instruments, and group music making. Music therapy can provide a space to learn how to express emotions non-verbally. The music therapist may use projective techniques to help teach children how to use different instruments to express different emotions. They can use these techniques instead of manifestations of aggression due to their frustrations. It is important to consider instrumentation choice, for example, I may avoid drums

because they can be overstimulating for a child with ASD and triggering for someone with trauma. By understanding the neurology behind ASD and trauma, I am better able to understand why some activities may be more difficult or over stimulating.

It is important to note that these three clients have a similar trauma history, all related to parental neglect, abandonment, or abuse. Austin (2008) explained that her theory on vocal improvisation, a safe place to play, is like Winnicott's (1965, 1971) concept of a potential space for play. Traumatized children often need a safe place to play, where the abusive or neglecting parent is not present.

Results

Vignette 1: Eleven-year-old male diagnosed with ASD. Trauma history includes, parental neglect, abandonment, related to substance abuse and imprisonment of parents.

Near the beginning of his music therapy treatment, I used an NMT technique called Auditory Perception Training (APT). According to Mertel (2014a) APT is an evidenced based treatment that works well for children diagnosed with ASD. APT is often used to address cognitive training both for sensory integration and auditory perception. Mertel supported the use of APT for children with ASD, and stated, "children with autism or hearing difficulties tend to show deficits in expressive and receptive communication skills" (2014, p. 231). I employed APT as an assessment of this client's abilities related to expressive and receptive communication skills, and for his sensory integration and auditory perception. After APT was employed, this client's negative self-talk and violent language stopped. He demonstrated positive and emotionally regulated talk, which made it apparent that APT had served my client as a cognitive distraction, an emotional regulation tool, and addressed sensory and auditory related goals. I continued to use APT in follow-up sessions when this client was exhibited unsafe behaviors.

This is important to note, because this is not how Mertel (2014a) described APT functional use; however, APT served as a cognitive distraction and emotional regulation that kept my client safe from his own thoughts and physical behaviors.

I was aware that APT was not sufficient for holding this client's emotional pain. In the literature I reviewed, the emotional needs of children with ASD were not mentioned or only briefly mentioned. I believe this lack of focus reflects my previous note in the literature review, that clients with ASD do not lack emotional awareness they often lack the ability to express emotions. As our therapeutic relationship progressed, feelings of loss, self-doubt, self-hatred surfaced on the part of my client. These emotional leaks could have been ignored and pushed down by employing only APT or other music based cognitive distractions. This is when I started to employ VPT techniques, specifically vocal holding interventions. A treatment plan involving only VPT could perhaps be too overwhelming for the school setting, because of the lack of support in a classroom setting. This vignette demonstrated how APT and VPT, respectively, balanced the client's immediate and ongoing needs. At times it is in the best interest of the client, particularly in a school setting, to ground and contain emotions related to trauma, rather than exploring them or reexperiencing them, which vocal holding can allow clients to do. In a different facility, such as in private practice, a more rigorous treatment using only VPT interventions, such as vocal holding paired with free-associative singing to treat trauma would be a deeper form of healing for clients and more easily supported. I used the piano as an emotional grounding instrument for this client. I chose the piano for the rich deep tones. He sang as he released emotions, while accompanied on the piano to hold him in a way that allowed him to continue with his day and return to class.

Based on the results of my work with this client, I can suggest that for children with ASD and trauma, NMT techniques can be an excellent starting place to assess client needs and some clients may need more sensory or motor goals than others. However, if the therapist is unaware of the client's trauma needs or uses only NMT techniques, this can leave a client with severe problems and emotional unrest. Ignoring the client's trauma by using strictly NMT in music therapy treatments can be emotionally harmful for the client's overall outcome. For the music therapist practicing NMT techniques with clients with ASD, it is important to always be assessing for potential trauma. While using relevant NMT techniques the therapist should remember that self-esteem and self-autonomy are important because of the nature of NMT techniques. NMT techniques often rely heavily on the expertise of the therapist and if not approached in the right way can leave the client who has experienced trauma feeling a lack of self-esteem or self-efficacy. It is important to recognize the benefit of balancing NMT techniques with VPT treatment. While NMT alone is often not enough for clients with emotional trauma, an overload of VPT can be emotionally overwhelming. Not only does the client need the balance of NMT and VPT for different goals, but also the balance of these techniques in a session may provide a space for the client to recenter and reset after intense emotions are released during VPT treatment. I noticed overlap of needs, for example when I used APT with this client who lacked motor control, I recognized that this motor movement was also helped him to feel calm after he experienced emotional flooding.

Vignette 2: Thirteen-year old male client diagnosed with ASD and an intellectual disability.

Trauma history includes parent neglect and abandonment in early childhood.

With my second client example, unlike the first client, this client started with more VPT focused treatment and later added more NMT techniques. It became apparent that VPT alone

could not address all client needs, he needed some NMT techniques to ground him in reality. Specifically, Musical Sensory Orientation Training (MSOT) was a beneficial NMT technique for him. From early on in his treatment vocal holding was something that he enjoyed and benefited from. He specifically benefited from the use of improvisatory singing, through vocal holding interventions. Music Therapy became a place for him to release his emotions through his voice, both with and without words. The use of improvisatory singing without words was particularly beneficial for an emotional release of held trauma. There were times that he would scream as the I played piano holding the intensity of his voice, he would then pat his chest and rock back and forth saying, "I think I got it out". This is beneficial for him because of his difficulty with expressive language, sometimes emotional release was hard because of the strong reliance on verbal processing in traditionally therapy. Expressive language goals were addressed through other music therapy techniques such as lyrical analysis, which has provided this client with the skills needed to verbally express his emotions. However, some trauma is deeper than words and VPT provided a safe place to release his emotions. Diane Austin's deep roots in psychodynamic theory relate especially well to clients with trauma. Particularly with clients who have experienced parental neglect and abandonment. Austin (2008) stated, "children who had to be good to win their parents' approval, as well as traumatized children who lived in hypervigilance in order to survive in a hostile environment, were robbed of their childhood and often cannot play" (p. 55). She goes on to say that these children do often fantasize, and they also can dissociate from reality. These disconnections from reality can protect the child from more emotional pain and damage and being further traumatized. Austin explains that although this can save the child's life it is not the same as playing. Austin explained how "vocal improvisation is a form of play" (p. 55).

This second client example again supports the need for balance with VPT and NMT practices in music therapy. For this client, VPT provided a safe place to escape reality, explore himself, and release emotions that were trapped inside by traumatic events. I hypothesize that if VPT interventions were used without adding MSOT, the client would have been left disconnected from reality. Application of MSOT was recommended by Myskja (2014) for clients who have clinical presentations affecting their attention, arousal, or a sensory response. Although MSOT is primarily used for dementia, developmental disabilities and disorders of consciousness, Myskja noted that "there have also been reports of the use of MSOT in patients with autism spectrum disorder [ASD], and it has potential application in patients with attention deficit hyperactivity disorder (ADHD), attention deficit disorder (ADD), and related states" (2014, p. 221). My results have demonstrated that NMT techniques were effective music therapy interventions when combined with vocal psychotherapy for clients diagnosed with ASD and a history of trauma.

Discussion

The exploration of integrating two starkly different practices, VPT and NMT, to provide a more holistic music therapy approach to treat children with ASD and known trauma seemed reasonable because they complement each other. Each theory lacked what the other needed to serve children with ASD and trauma holistically. Vocal Psychotherapy provides the emotional, spiritual, and mental support needed by those who suffer with ASD and trauma that is past or ongoing. Neurologic music therapy offers children with ASD and trauma support for sensorimotor, cognition, and speech language needs. In my integrated method, I discovered that the NMT techniques I used can correspondingly serve as a cognitive distraction needed by a dysregulated client with ASD and trauma. Through the exploration at my internship with

children and adolescents with ASD and a history of trauma, I find NMT techniques very helpful for their movement, attention, speech production, learning, and memory goals; however it lacks creativity for moments of self-discovery and recovery from trauma.

Developing an integrated music therapy method for children with ASD and known trauma, to the best of my knowledge, is a new method of treatment in the field of music therapy. This integrated music therapy method deserves further trials and investigation by a wider number of clinicians and with more clients. The literature review here highlighted how both theories do consider the needs of children with ASD. Neurologic music therapy does not seek to meet nor claim to meet the spiritual, mental, or emotional needs of those diagnosed with ASD, nor those with trauma. Those needs are met with a theory like VPT. However, this population with ASD and trauma history has sensorimotor, cognitive and speech needs that can be addressed by integrating NMT techniques like MSOT or APT.

I would like to further explore this method with other NMT techniques such as Rhythmic Auditory Stimulation (RAS), Patterned Sensory Enhancement (PSE), or Therapeutical Instrumental Music Performance (TIMP) and then compare them to the research and observations of Dr. Oliver Sacks. These three techniques all address movement goals, targeting rehabilitation of movements and avoiding client compensations, such as swinging their leg to the side to avoid the pain.

I do not believe clinicians ignore the needs of children with ASD and trauma; though, in my limited review of the literature they were not discussed together in music therapy treatments. In the future I would like to study more theories related to this population and recommend that other expressive therapy modalities contribute to this development of an integrated approach. I can hypothesize based on the two vignettes described that a combination of VPT and NMT

techniques provide a child or adolescent diagnosed with ASD and history of trauma a more holistic treatment approach. These clinical findings provide a basis of the benefits of integrating two approaches, one more scientific and data driven and the other more holistic and person-centered. Additionally, this integrated method was explored in private music therapy sessions; however, modifications could safely approach this method with other interdisciplinary team members. Specifically considering the alternative, therapeutic site of exploration, a music therapist and LMHC collaboration could provide a safe place for clients who are ready for deeper trauma work. This approach and techniques, method, could be adapted for in home therapy, a private practice, or a hospital. My observations and exploration were in an alternative school setting. In the future when provided with more time, I would be interested in further exploration of this method in a private practice. Private practice would provide more opportunity to collaborate with client's family on a regular basis, as needed, or in-home visits to observe family interactions with the child or adolescent. At my internship site, family input was derived from regularly scheduled meetings.

For clinicians interested in exploring this developing method or approach integrating VPT and NMT techniques, I recommend reading the key references for this paper, particularly Diane Austin's book and Michael Thaut's book. Based on my experience and observations with this method development, NMT techniques and VPT were fundamental. The children and adolescents I observed, with ASD and a history of trauma or ongoing trauma, had physical and neurological needs. VPT balanced these needs, NMT alone does not treat the whole child. Thaut, McIntosh, and Hoemberg (2014) discussed the shift of music therapy from a sociocultural values and social science process to a focus on stimulus process.

I have noticed is that physical needs such as motor, speech-language, and memory, often have an impact on self-esteem, especially the children with a history of emotional or physical trauma. My clients often become embarrassed if they are unable to complete a motor task, NMT does not provide guidance for therapists to assist clients who are suffering from an injured self-esteem. According to Austin (2008) clients can heal from their broken self-esteem through “a reparative relationship with a psychotherapist or a music psychotherapist who is present and emotionally available” (p. 55).

There is a need for more exploration of this method of music therapy to establish other combinations of VPT and NMT techniques for clients diagnosed with ASD and trauma experience. Further development and exploration of this method is recommended with the same population and other client populations related to the holistic approach. Neurologic music therapy (NMT) techniques are implemented to heal the diseased or injured brain. Vocal psychotherapy intervention can heal the injured soul. The client with ASD and a history or ongoing trauma experience has an injured brain and an injured soul.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.
- Allen, R., Hill, E., & Heaton, P. (2009). "Hath Charms to Soothe...": An Exploratory Study of How High-Functioning Adults with ASD Experience Music. *Autism: The International Journal of Research and Practice*, 13(1), 21–41.
- Allen, R., Davis, R., & Hill, E. (2013). The Effects of Autism and Alexithymia on Physiological and Verbal Responsiveness to Music. *Journal of Autism & Developmental Disorders*, 43(2), 432–444. <https://doi.org/10.1007/s10803-012-1587-8>
- Austin, D. (2008). *The theory and practice of vocal psychotherapy: Songs of the self*. Jessica Kingsley Publishers.
- Basham, K. (2016). Trauma theories and disorders. In J. Berzoff, L. M. Flanagan, & P. Hertz, P. (Eds.), *Inside out and outside in: Psychodynamic clinical theory and psychopathology in contemporary multicultural contexts* (4th ed., pp. 481-517). Rowman & Littlefield.
- Brancatisano, O., Baird, A., & Thompson, W. F. (2020). Why is music therapeutic for neurological disorders? The therapeutic music capacities model. *Neuroscience and Biobehavioral Reviews*, 112, 600–615. <https://doi.org/10.1016/j.neubiorev.2020.02.008>
- Corey, M., Corey, G. & Corey, C. (2018). *Groups: Process and Practice*. (10th ed.). Cengage Learning.
- Hardy, M. & LaGasse, A. B. (2018). Music therapy for persons with autism spectrum disorder. In A. Knight, A. B. LaGasse & A. A. Clair, (Eds.), *Music therapy: An introduction to the profession*. American Music Therapy Association.

- Johnson, S. (2014). Therapeutic singing. In M. H. Thaut & V. Hoemberg (Ed.), *Handbook of neurologic music therapy* (pp. 185-195). Oxford University Press.
- Levitin, D. J. (2006). *This is your brain on music: The science of a human obsession*. Penguin Group.
- Mertel, K. (2014a). Auditory perception training. In M. H. Thaut & V. Hoemberg (Ed.), *Handbook of neurologic music therapy* (pp. 227-256). Oxford University Press.
- Mertel, K. (2014b). Therapeutical instrumental music performance. In M. H. Thaut & V. Hoemberg (Ed.), *Handbook of neurologic music therapy* (pp. 116-139). Oxford University Press.
- Myskja, A. (2014). Musical sensory orientation training. In M. H. Thaut & V. Hoemberg (Ed.), *Handbook of neurologic music therapy* (pp. 221-226). Oxford University Press.
- Petruta-Maria, C. (2015). The role of art and music therapy techniques in the educational system of children with special problems. *Procedia - Social and Behavioral Sciences*, 187, 277–282.
- Sacks, O. (2007). *Musicophilia: Tales of music and the brain*. Vintage Books A Division of Random House, Inc.
- Santomauro, D., Sheffield, J., & Sofronoff, K. (2017). Investigations into emotion regulation difficulties among adolescents and young adults with autism spectrum disorder: A qualitative study. *Journal of Intellectual & Developmental Disability*, 42(3), 275–284. <https://doi.org/10.3109/13668250.2016.1236240>
- Thaut, M. H., McIntosh, G. C. & Hoemberg, V. (2014). Neurologic music therapy: From social science to neuroscience. In M. H. Thaut & V. Hoemberg (Ed.), *Handbook of neurologic music therapy* (pp. 1-6). Oxford University Press.

Thaut, M. H. & Hoemberg, V. (2014). *Handbook of neurologic music therapy*. Oxford University Press.

The Academy of Neurologic Music Therapy (n.d.). <https://nmtacademy.co/home/clinic/>

Tippet, K. (Host). (2013). *Bessel van der Kolk: How trauma lodges in the body* [Audio podcast]. <https://onbeing.org/programs/bessel-van-der-kolk-how-trauma-lodges-in-the-body/#audio>

Wan, C., Rüber, T., Hohmann, A., & Schlaug, G. (2010). The therapeutic effects of singing in neurological disorders. *Music Perception: An Interdisciplinary Journal*, 27(4), 287-295. doi:10.1525/mp.2010.27.4.287

Wheeler, B. L., (2015). *Music therapy handbook*. The Guilford Press.

Yalom, I. D. (2002). *The gift of therapy: An open letter to a new generation of therapists and their patients*. Harper Perennial.

THESIS APPROVAL FORM

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