

The Integral Role of the Therapeutic Relationship within a Neuroscience-Informed Approach to
Music Therapy Practice: A Philosophical Inquiry

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Abstract

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Lorelei Dietz

The purpose of this philosophical inquiry was to argue for the integral importance of the therapeutic relationship within a neuroscience-informed approach to music therapy practice. A preliminary review of the music therapy literature revealed that the therapeutic relationship is important for the following reasons: the therapeutic relationship (a) provides a safe environment integral to the music therapy process; (b) enhances motivation and engagement through a collaboration between the client and music therapist; and (c) informs the active individualization of music therapy interventions. An initial review of the literature included an exploration of the neuroscience-informed music therapy literature and the importance of the therapeutic relationship in music therapy practice. The neuroscience-informed music therapy literature was analyzed using the aforementioned reasons to investigate why the therapeutic relationship is important within the approach. Findings of the analysis provided evidence of the importance of the therapeutic relationship within neuroscience-informed music therapy, as well as preliminary conceptualizations of the relationship using existing neuroscience-informed clinical protocols. Perspectives from social neuroscience, interpersonal neurobiology, music neuroscience, and music therapy were integrated throughout the research thesis to provide music therapists working from a neuroscience-informed approach with the language to articulate the importance of the relational elements of their work. Recommendations for future research are presented.

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Chapter 1. Introduction

Music therapy is an inherently relational and interactive process (Birnbaum, 2014; Tomaino, 2013). Defined as the intentional use of music and its elements within therapeutic relationships to support development, health, and well-being, music therapy is a live, creative process wherein the relational and musical processes act as dynamic forces of change (Bruscia, 2014; Canadian Association of Music Therapists, 2020; Ruud, 1998). These definitions situate the therapeutic relationship as a defining element of music therapy practice from a Western cultural perspective (Aigen, 2005). This professional and dynamic relationship between the music therapist and client encompasses both intermusical and interpersonal processes (Aigen, 2014a; Bruscia, 2014; Tomaino, 2013). The music therapy literature describes the therapeutic relationship as an integral part of the music therapy process because it (a) provides a safe environment integral to the music therapy process; (b) enhances motivation and engagement through a collaboration between the client and music therapist; and (c) informs the active individualization of music therapy interventions (Aigen, 2014a; Baker, 2011; Birnbaum, 2014; Magee, 1999; O'Kelly, 2016; Rolvsjord, 2010).

Conversely, the neuroscience-informed music therapy literature reveals discordant perspectives regarding the integral importance of the therapeutic relationship (Hunt, 2015; Sena Moore & LaGasse, 2018; O'Kelly, 2016; Tomaino, 2013). Neuroscience-informed music therapy is an approach to music therapy practice comprised of research-based interventions that are informed by a neuroscientific understanding of pathology, music perception, and music cognition (Sena Moore & Lagasse, 2018). The focus is on the functional aspects of the music therapy process; the musical stimuli within an intervention is centralized as the primary catalyst for therapeutic change (Sena Moore & LaGasse, 2018; Taylor, 2010; Thaut & Hoemberg, 2014). However, certain music therapists working within this approach also consider the therapeutic relationship as an agent of change (Hunt, 2015; Magee & Stewart, 2015; Tomaino, 2013). This difference in perspectives presents a discrepancy within the approach regarding the importance of the therapeutic relationship and its role in the music therapy process. Additionally, though the therapeutic relationship is addressed in neuroscience-informed literature, its role has yet to be articulated and explicitly conceptualized. Music therapists working from a neuroscience-informed approach are therefore required to conceptualize the therapeutic relationship and its role in the music therapy process in their own ways. This presents a need to explicate the integral

importance of the therapeutic relationship within a neuroscience-informed approach to music therapy practice.

Relevance to Music Therapy

While completing education and training in a neuroscience-informed approach, I noticed differences in the ways music therapists were discussing the therapeutic relationship and general relational elements of their practice. While working in neurorehabilitation settings, it became increasingly clear that relational processes were central to engaging clients and ensuring their success in music therapy. For example, while working with an adult stroke survivor using musical improvisation, I discovered that attuning to her rhythms, movements, and vocalizations, as well as recognizing her subjective experience contributed to the development of a unique therapeutic relationship. This relationship provided a safe space for the client to engage in creative forms of self-expression and reminiscence, as well as fostering moments of connection with her husband; it was clear that the therapeutic relationship had been integral to this client's success in music therapy.

Upon reviewing the literature, I noticed a philosophical and theoretical discrepancy within a neuroscience-informed approach. Certain perspectives viewed the therapeutic relationship as a primary agent of change, demonstrating a postmodernist view that emphasized the existence of multiple subjective realities steeped in socio-cultural experience (Hernandez-Ruiz, 2005; Hunt, 2015; O'Kelly, 2016; Sena Moore & LaGasse, 2018). Contrasting perspectives, rooted in a post-positivist philosophy that emphasized a singular reality observable through scientific observation, did not recognize the relationship as significant in the music therapy process (Taylor, 2010; Thaut & Hoemberg, 2014). Furthermore, the therapeutic relationship had yet to be theoretically conceptualized in the neuroscience-informed literature. This discrepancy explicitly demonstrates a need to explicate the importance of the relationship and present ways in which it can be conceptualized within a neuroscience-informed approach to music therapy practice.

This topic is relevant to music therapy because of the importance of integrating both post-positivist and post-modernist thinking within a neuroscience-informed approach to music therapy practice. By explicating the importance of therapeutic relationship, post-modernist thinking is applied to gain new theoretical insights about a neuroscience-informed approach. This is relevant to the theoretical and philosophical development of neuroscience-informed music therapy, an

approach only recently proposed by Sena Moore and LaGasse (2018). It is important for music therapists working within this approach to recognize and be able to articulate the integral role of the therapeutic relationship in the music therapy process.

Statement of Purpose

The purpose of this research study was to argue a case for the conceptualization and integration of the therapeutic relationship within a neuroscience-informed approach to music therapy practice by explicating its integral role within the approach.

Key Terms

Music Therapy is defined as the intentional use of musical experiences, within therapeutic relationships, to support development, health, and well-being (CAMT, 2020). It is a live, creative process wherein the relational and musical experiences act as dynamic forces of change (Bruscia, 2014).

The Therapeutic Relationship is defined as a professional, dynamic relationship between the music therapist and client that encompasses both intermusical and interpersonal processes (Aigen, 2014a).

Neuroscience-Informed Music Therapy is defined as an approach to music therapy practice comprised of research-based interventions that are informed by a neuroscientific understanding of pathology, music perception, and music cognition. The approach also applies an understanding of how music therapy interventions contribute to changes in behaviour or neural connections (Sena Moore & LaGasse, 2018).

Research Questions

The primary research question of the study was: Why should the therapeutic relationship be considered as an integral element within a neuroscience-informed approach to music therapy practice and how might it be conceptualized? The subsidiary questions were: (a) Why is the therapeutic relationship important in music therapy practice?; (b) Why is the therapeutic relationship important in a neuroscience-informed approach to music therapy practice?; (c) How can the therapeutic relationship be conceptualized within a neuroscience-informed approach to music therapy practice?

Assumptions

In this research study, it is assumed that the therapeutic relationship is a defining element of music therapy practice. I, the student-researcher, assume that the values of trust, mutual

respect, and empathy should be considered as integral elements within all approaches of music therapy practice (Aigen, 2014). Additionally, I assume an integral understanding of music therapy practice, one where all approaches are considered to have significance and value depending upon the needs of each client and the affordances of each clinical context (Abrams, 2010). Though this inquiry addresses a discrepancy within a neuroscience-informed approach, I assume the value of all neuroscience-informed perspectives. Rather than attempting to solve or rectify the discrepancy, the aim of the inquiry was to present an argument and create discourse in the field.

Summary of Chapters

This introductory chapter outlines the purpose and relevance of this philosophical inquiry. Chapter 2 explains how a philosophical inquiry methodology is applied to answer the research questions. Chapter 3 provides contextual information about neuroscience-informed music therapy and explores a discrepancy within the approach. It will also draw on relevant literature to provide an outline of the importance of the therapeutic relationship in music therapy practice. Chapter 4 demonstrates how a conceptualization of the therapeutic relationship can address the discrepancy within a neuroscience informed approach. Finally, chapter 5, discusses the findings of the research and its implications for music therapy research and practice.

Chapter 2. Methodology

The current chapter outlines how a philosophical inquiry was utilized to investigate why the therapeutic relationship should be considered an integral element within a neuroscience-informed approach to music therapy practice. It also describes how materials, data collection, and data analysis were used to explicate the findings and articulate the arguments of this inquiry.

Design

This research study uses a philosophical inquiry design to answer the research questions. Stige and Strand (2016) state that philosophical processes, specifically “the ways in which philosophers grapple with ideas and attempt to gain clarification,” (p. 3,310) are significant to the development of music therapy research and practice. Philosophical inquiry designs are implemented to answer questions that are ontological, epistemological, ethical, or axiological in nature (Aigen, 2005). The primary question of this research project is axiological in nature because it seeks to establish the value and significance of the therapeutic relationship within a neuroscience-informed approach to music therapy practice.

Philosophical inquiry designs are unique in their use of philosophical procedures to “analyze and contextualize theory, research, and practice within the history of ideas” (Aigen, 2005, p. 526). This design is therefore well-suited to explore and connect the ideas of individuals from various fields, theoretical traditions, and research practices. Aigen (2005) further states that these philosophical procedures are used when “evaluating and comparing theories, theoretical systems, and comprehensive philosophical systems of thought” (p. 527). In the case of this research project, philosophical procedures were used through the data analysis, to evaluate, compare, and connect philosophical systems of thought concerning the importance of therapeutic relationship within a neuroscience-informed approach to music therapy practice.

Materials

Relevant ideas from the literature were compiled in an Excel spreadsheet to develop arguments to answer the research question. Therefore, materials employed included my (the student-researcher’s) personal computer and relevant Microsoft software programs, as well as a personal notebook used to record emerging thoughts.

Delimitations

In keeping with the design of a philosophical inquiry methodology and to ensure the research study remained within the scope of a master’s thesis, delimitations were imposed. First,

the data collection process was delimited to English-only scholarly sources. The data collection was also limited to sources published within the years 1999-2021. The literature search specifically examined dyadic music therapy processes rather than group processes.

Data Collection

To plan the philosophical inquiry, the following sources were consulted to answer the research questions. Journal articles, editorials, relevant interviews, and scholastic books/chapters were obtained using the search engines such as Google Scholar, ProQuest, PsychInfo, and the Concordia University Library Database, Sofia. The following music therapy journals were consulted: *Canadian Journal of Music Therapy*, *Music Therapy Perspectives*, *Journal of Music Therapy*, *Nordic Journal of Music Therapy*, *British Journal of Music Therapy*, and *Voices: A World Forum of Music Therapy*. Journals from related fields such as *The Arts in Psychotherapy*, *Journal of Integrative Neuroscience*, and *Frontiers in Neuroscience* were also consulted as well as books that describe the application of neuroscience research in music therapy practice, such as the *Handbook of Neurologic Music Therapy* (Thaut & Hoemberg, 2014) and *The Study of Music Therapy: Current Issues and Concepts* (Aigen, 2014a, 2014b). The following search terms were used in multiple combinations: neuroscience, music therapy, neuroscience-informed music therapy, neurorehabilitation, brain injury, neuroplasticity, social neuroscience, interpersonal neurobiology, modern attachment theory, and therapeutic relationship. Sources were included based on relevance to the research questions as determined by me, the student-researcher. From the relevant literature, I gathered and organized the data into categories within a Microsoft Excel spreadsheet. The categories included: author, year, type of document, notes, quotes, and central ideas.

Data Analysis

A central component of a philosophical inquiry design is the use of “argument as a primary form of inquiry” (Aigen, 2005, p. 527). To analyze the data, the following philosophical processes were used: relating ideas and drawing connections between systems of thought, explicating and evaluating underlying assumptions, and developing new philosophical ideas (Aigen, 2005). An excel spreadsheet helped organize the emerging arguments. Additionally, ideas and questions were recorded in a personal notebook which was used to reflect on and gain insights into the research process. A constructivist epistemology grounded this research study; I actively acknowledged that the research process was constructed by my social, historical, and individual contexts (Wheeler &

Bruscia, 2016). These analysis processes were used to build the arguments presented in the following literature review (Chapter 3) and later explicated in the research findings (Chapter 4).

Chapter 3. Literature Review

The following review of the literature situates the reader by providing contextual and descriptive information that forms the foundation of this inquiry. A neuroscience-informed approach is first explained and situated within music therapy practice. The therapeutic relationship is then explored as it appears in the neuroscience-informed music therapy literature. Discordant perspectives are reviewed to reveal a theoretical and philosophical discrepancy within the approach. The therapeutic relationship is then explored broadly in various approaches to music therapy practice. Emergent themes from these perspectives are drawn to articulate the integral role of the therapeutic relationship within music therapy practice.

Situating a Neuroscience-Informed Approach within Music Therapy Research and Practice

First defined by Sena Moore & LaGasse (2018), neuroscience-informed music therapy applies a physiological understanding of neuropathology or injury and utilizes the neuroscientific study of how therapeutic musical interventions may contribute to changes in behaviour or neural connections. A defining element of neuroscience-informed music therapy is that change in therapy is viewed as changes in brain structure (Stegemöller, 2014; Taylor, 2010; Thaut, 2008). The approach encompasses ways of applying research from neuroscience, music neuroscience, and neuroscience-informed music therapy within music therapy practice (O’Kelly, 2016). It evolved from research in neuroscience, specifically the field of music neuroscience, including music perception and cognition (Sena Moore & LaGasse, 2018).

Music Neuroscience. Research examining the neuroscience of musical perception and behaviour developed in the early 1990s. This increase in research led to the creation of the field of music neuroscience which seeks to study the neural mechanisms underlying the perception and production of music (World Federation of Music Therapy Movies, 2013). Studies in music neuroscience have demonstrated how the brain responds to musical elements such as rhythm (Thaut et al., 2015), harmony, melody, and pitch (Levitin, 2013), as well as and how it responds to emotions portrayed through music (Blood & Zatorre, 1999).

To examine the neurophysiological impacts of music, imaging methods such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and positron emission tomography (PET) are used within a highly controlled setting (Chanda & Levitin, 2013;

Hunt, 2015; Sarkamo et. al, 2016). For example, using PET scans, Blood and Zatorre (1999) showed that the paralimbic and limbic structures (largely involved in emotional processing) were activated when participants felt “chills” or intense, pleasurable emotional responses while listening to music. Measures such as heart rate variability and skin conductance have been used to determine the physiological impact of music (Chanda & Levitin, 2013). To ensure a controlled environment necessary for this type of objectivist research, music is often broken down into its elements (i.e., rhythm, pitch, timbre, melody, etc.). For example, Thaut and McIntosh (2014) described rhythm as “the most important structural element” (p. 106) when studying the effects of music (specifically rhythm) on motor entrainment.

In a systematic review, Chanda and Levitin (2013) describe the research evidence that demonstrates the neurochemical effects of music. They reviewed research literature examining the effects of music on four domains of health: (a) reward, motivation, and pleasure; (b) stress and arousal; (c) immunity; and (d) social affiliation. Each domain’s respective neurobiological correlates were reviewed which demonstrated the impact of music on the production of dopamine, cortisol, serotonin, and oxytocin, respectively. Methodological critiques of the literature indicate that, because of the highly controlled research settings, social contexts are often lacking. Furthermore, the decomposition of music into its elements lacks consistency and standardization within the literature because it is the subjective opinion of the researcher that often decides how the musical elements are separated (Chanda & Levitin, 2013; Sena Moore & LaGasse, 2018). Chanda and Levitin (2013) conclude by suggesting that future research include music therapists on the research teams because of their valued clinical and musical expertise.

Research in music neuroscience continues to provide insight into brain functions which informs music therapy practice by providing neurophysiological explanations about clinical interventions and elucidating further areas of music therapy research (O’Kelly, 2016; Magee & Stewart, 2015). However, it is important to distinguish research in music neuroscience from research in music therapy that applies neuroscience methods.

A Neuroscience-Informed Approach to Music Therapy Research

Following the development of research in music neuroscience, researchers began to examine the neural correlates of music used in therapeutic contexts with persons with neurological disorders (de L’Étoile & LaGasse, 2013; Thaut et al., 2014). Additionally, a shift towards evidence-based practice in the early 21st century sparked a surge in research that

examined the neuroscience of music in therapy to create an evidence-base for music therapy practice (Aigen, 2015). Neuroscience methods were increasingly incorporated to answer how and why music therapy works from a neurophysiological perspective.

The role of research in neuroscience-informed music therapy is to identify underlying neurophysiological processes associated with musical engagement and to examine the impact of music therapy protocols according to clinical population (Sena Moore & LaGasse, 2018). These include, but are not limited to, persons in neurorehabilitation care, neonatal care, mental health care, and persons living with movement disorders. Neuroscience-informed research also grounds the creation of intervention protocols that music therapists apply in clinical practice. The following section will examine the neuroscience-informed literature as it relates to music therapy practice and describe the various models and theories that comprise the approach.

A Neuroscience-Informed Approach to Music Therapy Practice

A neuroscience-informed approach to music therapy is comprised of research-based interventions that are informed by a neuroscientific understanding of pathology, music perception, and music cognition (Sena Moore & LaGasse, 2018). The approach encompasses various music therapy models and theories, such as Neurologic Music Therapy (Thaut & Hoemberg, 2014), the Biomedical Theory (Taylor, 2010), and the Neuroplastic Model (Stegemöller, 2014).

Neurologic Music Therapy. Neurologic Music Therapy (NMT) is a research-based system of twenty standardized clinical interventions that targets the areas of cognitive, sensory, and motor dysfunction that result from disease or disorder in the nervous system (Thaut & Hoemberg, 2014). With a focus on functional goals and objective observations, NMT aims to establish music therapy as a core form of therapy as opposed to serving a complementary role in medical, educational, or rehabilitative settings (Thaut, 2015). In NMT, music and its elements are viewed within therapy as stimuli that influence the “neurophysiological basis of cognition and sensorimotor functions” (Thaut et al., 2014, p. 2). NMT also seeks to create an evidence base for music therapy practice that is grounded in neuroscience research and intentionally moves away from socio-cultural perspectives (Thaut et al., 2014). The system of Neurologic Music Therapy interventions may be applied with various populations including, but not limited to, neurological rehabilitation (including brain injuries and neurological disorders), neurodevelopmental therapy, neuropediatric care, and neuropsychiatry (Thaut, 2015).

Biomedical theory of music therapy. Taylor (2010) presents a biomedical-informed theory of music therapy in his text, *Biomedical Foundations of Music as Therapy*. The text is theoretical and it aims to provide an evidence base for music therapy rather than specific interventions or clinical protocols. The theory shares a similar perspective to NMT, that change in clients engagement in music therapy must be understood as changes in brain function. The brain is at the core of the music therapy process, as stated by Taylor (2010):

Because the human brain must first interpret any sound as ‘music’ before there can be a ‘musical’ influence, and because every client has a brain that must change its ways of doing things in order for therapy to take place, the human brain must be recognized as the basic domain of treatment and the primary focus for change in all music therapy applications (p. 46).

The theory is informed by research from biomedicine, neuroscience, and music neuroscience. It aims to create a single theoretical framework rooted in objective evidence that applies to all work in music therapy (Aigen, 2014b).

Neuroplasticity and music therapy. Drawing connections between research in music therapy and neuroscience, Stegemöller (2014) proposes a model rooted in principles of neuroplasticity. In her article, she provides music therapists with foundational information about neuroplasticity and how it can be applied with different clinical populations. She outlines the three basic principles of neuroplasticity, namely the increase in dopamine, presence of neural synchrony, and ability to provide a clear temporal cue. In describing the model, Stegemöller (2014) details the function of dopamine as a chemical catalyst for neuroplastic change. Music therapy is therefore described as an efficient way of promoting neuroplasticity, since music is shown to increase dopamine production. Stegemöller (2014) further provides direction to music therapists who are applying the proposed model in clinical practice to target goal areas such as social, emotional, movement, communication, and cognitive areas.

Areas of practice. A neuroscience-informed approach can be applied to a variety of clinical contexts and settings (Sena Moore & LaGasse, 2018). However, a review of the literature reveals that a neuroscience-informed approach has been applied in the areas of brain injury rehabilitation (Baker, 2011; Baker & Tamplin, 2006; Magee, 1999; O’Kelly, 2016; Siponkoski et al., 2020; Thaut et al., 2014), disorders of consciousness (Baker & Tamplin, 2006; Magee & O’Kelly, 2015), autism spectrum disorder (LaGasse et al., 2019; Wheeler, 2014) and

mental-health (Hunt, 2015; Hunt & Legge, 2015). Although all are utilized within a neuroscience-informed approach, aspects of research and principles from neuroscience and music neuroscience are integrated differently within the literature. This is evident when examining descriptions of the therapeutic relationship within the neuroscience-informed literature.

The Therapeutic Relationship in a Neuroscience-Informed Approach: A Discrepancy in the Literature

An examination of descriptions of the therapeutic relationship in the neuroscience-informed music therapy literature reveals that certain perspectives view the therapeutic relationship as a primary agent of change, while others state the musical stimuli is the sole agent of change in the music therapy process. For example, *Neurologic Music Therapy and the Biomedical Theory* texts describe the musical stimuli as the primary agents of change in music therapy (Taylor, 2010; Thaut et al., 2014). A musical stimulus is introduced within the context of an intervention which then catalyses neurological processes and, with time, changes in brain structure. Therefore, change in music therapy is understood within the context of the changes it creates in brain structure and function. Within these texts, the concept of the therapeutic relationship is not mentioned (Taylor, 2010; Thaut et al., 2014). The music therapy clinician is described as integral to the process; they are the person who engages with research to create new protocols addressing client needs (Sena Moore & LaGasse, 2018). These two perspectives are rooted in post-positive thinking; they acknowledge the existence of a singular reality, are informed by objectivist research rooted in the scientific method, and recognize the need for constant re-evaluation of findings as new research emerges (Taylor, 2010; Thaut et al., 2014).

Conversely, in defining a neuroscience-informed approach, Sena Moore and LaGasse (2018) state that all music experiences exist “within a therapeutic relationship” (p. 145). The authors do not expand on their description of the therapeutic relationship or its role in the music therapy process. In an informal dialogue, Magee and Stewart (2015) state that the therapeutic relationship is central to the music therapy process and can also be used to distinguish it from other music-based interventions such as music medicine (Magee & Stewart, 2015). O’Kelly (2016) also recognizes the value of the therapeutic relationship when reflecting on his work with an aphasic client:

Would this effect have happened without the therapeutic relationship I had developed prior to the landmark session, and how could this be captured with neuroscience methods? (p. 9).

This reflection demonstrates a recognition of the therapeutic relationship and its value. It also addresses that current neuroscience methods are unable to objectively capture its impact on the music therapy process. A similar claim is made by Hunt (2015), who advocates for recognizing the impact of the therapeutic relationship in music therapy research that applies neuroscience methods. She states that the therapeutic relationship includes the intersubjective nature of music, along with the social and environmental contexts of both the client and music therapist. From a philosophical standpoint, Hunt's (2015) statement incorporates aspects of postmodernist thought, specifically the recognition of multiple subjective realities shaped by socio-cultural contexts. Furthermore, describing the therapeutic relationship as an agent of change in the therapy process incorporates elements of postmodernism, specifically social constructionism which emphasizes that a person's subjective reality is constructed in relation to the world and their social relationships (Hernandez-Ruiz, 2005).

Though the therapeutic relationship has yet to be explicitly conceptualized within a neuroscience-informed approach, the concept of relational processes can be inferred from the neuroscience-informed literature. Sena Moore and LaGasse (2018) present ways in which the humanistic concept of relationality can be understood in the neuroscience-informed literature. They define relationality as "being aware of and understanding that one exists with others and in the world" (p. 146). Relationality can be inferred from the literature in dementia care, where music provided opportunities for social connection between persons living with dementia and their spouses (Sena Moore & LaGasse, 2018). Similarly, in neurorehabilitation settings, Baker and Tamplin (2006) describe that a brain injury can impact a person's relationship to their personal and professional worlds. In NMT, interventions such as Symbolic Communication Training through Music (SYCOM) and Music in Psychosocial Training and Counselling (MPC) can be understood as supporting relationality because the interventions focus on the development of intra and interpersonal skills (Sena Moore & LaGasse, 2018; Thaut & Hoemberg, 2014).

A review of the neuroscience-informed music therapy literature reveals a discord between perspectives regarding the importance of the therapeutic relationship in clinical practice. Certain perspectives place the central importance on the musical stimuli and intervention, while

others include the therapeutic relationship as integral. This presents a philosophical and theoretical discrepancy. In chapter 4, this discrepancy will be addressed and analysed using three themes that define the integral importance of the therapeutic relationship in music therapy practice. The following section describes conceptualizations of the relationship as found in the music therapy literature and highlights the three emergent themes that define its integral role in clinical practice.

The Therapeutic Relationship in Music Therapy Practice

The therapeutic relationship is described as the professional, musical, and dynamic relationship between client and music therapist and is considered a defining element of music therapy practice from a Western cultural perspective (Aigen, 2014a; Bruscia, 2014). The relationship is described as developing through both interpersonal and intermusical processes (Bruscia, 2014; Mössler et al., 2019). The nature of the relationship and its role in the therapeutic process differs amongst approaches to music therapy practice (Aigen, 2014a). The following section reviews theoretical conceptualizations of the therapeutic relationship within psychodynamic, social-based, and music-based approaches to music therapy practice. Finally, common themes are drawn to articulate the integral role of the therapeutic relationship within music therapy practice.

Psychotherapy-informed perspectives. Rooted in Freud's psychoanalytic theory, psychodynamic music therapy is a collection of approaches that focus on the exploration of the inner world of the individual (Aigen, 2014a). Within these approaches, there is an inherent focus on the relational dynamics between the client and therapist, specifically on the transference and countertransference elements revealed in the relationship (Kim, 2016). Musical experiences serve as a primary medium of change and communication, existing within a therapeutic relationship. In this way, the therapeutic relationship acts as a container of the therapeutic process:

As we engage musically with our clients, we enter their psychological space and in doing so create a new interpersonal space. It is in the context of the therapeutic relationship that emotions, once activated, can find expression and be transformed. (Pellitteri, 2009, p. 4)

Within the therapeutic relationship, there are underlying relational processes that, in the context of Pellitteri's (2009) description, facilitate emotional expression. The relationship also creates a space of safety and trust that is necessary for the client's transformation in therapy. Within the

musical experience or intervention, the music therapist and client share an intersubjective experience which may include emotionally attuning with one another (Pasiali, 2014). This also highlights the underlying relational processes that exist within the therapeutic relationship and their potential influence on the musical experience.

In her essays on Analytic Music Therapy (AMT), Priestley (2004) describes four ways that music therapists and clients meet in therapy. These levels can also be used as an assessment tool to determine which phase of the therapeutic process the client is in (Aigen, 2014a). First is the “working alliance” which is the foundational, professional relationship between client and therapist. Second, the “transference relationship” describes the interpersonal shifts that occur between client and therapist in response to feelings that originate from early relationship patterns. The “musical relationship” is the third and most intimate way of relating, described as meeting at a new, unconscious depth (Aigen, 2014a). When the relationship enters the fourth phase, the “role-free human relationship,” termination is indicated. In AMT, the therapeutic relationship is considered an integral and vital element of the therapeutic process. It is formed uniquely with each client and is adapted to meet their needs (Priestley, 2004).

Social-based perspectives. In her text on Resource-Oriented music therapy, Randi Rolvsjord (2010) describes the therapeutic relationship as an integral, role-free, and egalitarian relationship meant to empower clients and challenge traditional power-dynamics in therapy. The relationship is a collaboration, a “doing together” (p. 217) between the music therapist and client (Aigen, 2014a). The therapists’ role is to encourage the client to become involved in and actively use therapy, rather than selecting a specific intervention or clinical protocol. Thus, the therapeutic relationship is a means of empowering the client in their unique health journey (Aigen, 2014a).

Culture-centred music therapy (Stige, 2002) places a similar emphasis on equality and collaboration, advocating for the therapeutic relationship to be viewed as an “egalitarian partnership” (Aigen, 2014a, p. 111). Rooted in social and cultural contexts, the relationship serves, in part, to enhance the participation of the client both in therapy and in aspects of life (Stige, 2002, 2012). Therefore, the therapeutic relationship may exist in its traditional form in the music therapy room but is also dynamic and can be adapted to meet the needs of the client on all levels of society (Aigen, 2014a).

Music-based perspectives. Within music-based approaches such as Nordoff-Robbins (Aigen, 1998; Nordoff, & Robbins, 2007) and Music-Centered Music Therapy (Aigen, 2005b), the relationship between client and therapist is seen as a meeting of “co-musicians” (Aigen, 2014a, p. 112). The Nordoff-Robbins method describes the dynamic between client and therapist as a musical-therapeutic relationship developed through active musical communication (Birnbbaum, 2014). In discussing the relationship in both music-based approaches, Aigen (2014a) describes the initial musical meeting as a point when the client experiences a relationship to their music and that of the therapist. Through attuned musical responses, the therapist validates the client’s musical expressions and responds in a way that the “client feels heard” (Aigen, 2014a, p. 114, para 1). This description highlights the underlying relational (attunement) processes that exist within the therapeutic relationship.

From a music-centred music therapy perspective, Aigen (2005b) describes how the role of the therapeutic relationship may vary according to the theoretical and philosophical perspectives of the music therapist. The relationship exists primarily in the musical experiences, though it may also develop through verbalization. Aigen (2005b) states that music therapists may “use the therapeutic relationship as an important vehicle in therapy” (p. 367) though the primary “vehicle” remains the shared musical experience.

Musical improvisations are central to the therapeutic process in music-based approaches and are the medium through which a music-therapeutic relationship develops. Birnbaum (2014) describes how this relationship can be seen as “an intersubjective field [or] shared space in which communication and growth can take place” (p. 32, para 4). Therefore, the music-therapeutic relationship can be described as containing the shared intersubjective experiences of the client and therapist (Birnbbaum, 2014). It is important to note that, within music-based approaches the client’s foremost relationship is to the music; the client is described as relating to the music and within that, forming a personal relationship with the therapist (Aigen, 2014a). The client-therapist interaction has been central since the inception of the Nordoff-Robbins music therapy method, and continues to be a central point of discussion, according to Birnbaum (2014):

Articulating the nature and structure of the therapeutic relationship deepens our understanding of [Nordoff-Robbins Music Therapy] and provides a lens through which to understand other forms of music therapy that emphasize extemporaneous musical exchange as a foundation of the therapeutic process. (p. 30, para 2).

Though uniquely described in the context of the musical interactions, the musical-therapeutic relationship is considered integral to the music therapy process from music-based perspectives (Aigen, 2005b).

The Integral Importance of the Therapeutic Relationship in Music Therapy Practice: Emerging Themes from the Literature

A review of these perspectives demonstrates that the therapeutic relationship is uniquely conceptualized within different theoretical and philosophical orientations. It is also evident that within each conceptualization, the therapeutic relationship is considered integral to the music therapy process. A closer examination reveals three emergent themes that describe the integral importance of the therapeutic relationship in music therapy practice.

The therapeutic relationship provides a safe environment integral to the music therapy process. A review of the literature reveals that the therapeutic relationship is often described in connection with the concept of a safe environment. Psychodynamic perspectives describe the therapeutic relationship as containing a space of safety and trust, integral to a client's process in music therapy (Pasiali, 2014). The Analytic Music Therapy literature alludes to the therapeutic relationship as having a safe and holding quality (Priestley, 2004). Aigen (2005b) articulates the connection between safety and the therapeutic relationship in Music-Centred Music Therapy, describing the relationship between client and therapist as “a safe haven for the client” (p. 500) when navigating difficult demands in therapy. Furthermore, the use of words such as “within” (Birnbaum, 2014), “in” (Rolvsjord, 2010), or “haven” (Aigen, 2005b) denotes the therapeutic relationship as a type of container in the music therapy process. For example, in a case study examining the effects of music therapy on a person living with Parkinson's Disease, Panebianco and Lotter (2019) described how the therapeutic relationship “provided a space in which [the client] could share personal challenges and frustrations” (p. 91). A safe environment is also described in the literature as developing through both personal and musical experiences within the therapeutic relationship (Aigen, 2014a; Pasiali, 2014). Therefore, the relationship can be described as providing and containing the safe environment integral to the music therapy process.

The therapeutic relationship enhances motivation and engagement through a collaboration between the client and music therapist. Viewing the therapeutic relationship as a collaboration between music therapist and client is prevalent in approaches such as Resource-

Oriented Music Therapy (Rolvsjord, 2015), Culture-Centered Music Therapy (Stige, 2002, 2012), and Nordoff-Robbins Music Therapy (Aigen, 2014a; Birnbaum, 2014). Rolvsjord (2014) describes collaboration as the active participation of both the client and therapist throughout therapy (i.e., the process of assessment, goal development, and problem-solving, etc.). The Resource-Oriented approach places a specific importance on the notion of “doing together” (p. 217) in music therapy, specifically doing music together (Rolvsjord, 2010). This concept of collaboration, of doing together, is also evident in the culture-centered music therapy literature and is referred to as “health musiking” (Stige, 2012, p. 3788).

The concept of a co-created experience is also central in Nordoff-Robbins music therapy. Described as a meeting of co-musicians, the approach equally values the musical contributions of the client and therapist (Birnbaum, 2014). However, it is important to note that as the client’s relationship exists primarily to the music; the musical experience itself could be viewed as a third collaborator in the therapeutic process (Aigen, 2014a).

An examination of these descriptions reveals that collaboration within the therapeutic relationship may be rooted in different socio-political theories. However, a central tenet among the descriptions is the notion that contributions of both clients and therapist are valued equally. Collaboration therefore describes the equal value and inclusion of the client and music therapists’ contributions within the therapeutic relationship.

The therapeutic relationship informs the active individualization of music therapy interventions. Numerous theoretical perspectives allude to underlying relational processes within the therapeutic relationship which inform how experiences are tailored to the client. Literature from psychodynamic, music-centered, and Nordoff-Robbins music therapy perspectives articulate the existence of a shared intersubjective experience between the music therapist and client during a musical experience (Aigen, 2005b; Birnbaum, 2014; Hunt, 2015; Pasiali, 2014; Pellitteri, 2009). Birnbaum (2014) articulates how the therapeutic relationship can be conceptualized as an intersubjective space co-created during musical experiences. In a musical experience, the music therapist “shapes the client’s experience” (p. 113) based on their body language, mood, and responsiveness (Aigen, 2014a). Similarly, Pasiali describes how intersubjectivity may develop in a shared musical experience and adds that emotional attunement processes may be activated in tandem. In a study examining the impact of the therapeutic relationship in improvisational music therapy experiences with children on the autism spectrum,

Mössler and colleagues (2017) demonstrated that attunement processes, specifically matching the child's affect through music, contributed to intervention success. Their findings suggest that incorporating experiences that are “musically and emotionally attuned to the child's modes of communicating and relating” (p. 2804) may increase the success of therapy. Through attuning to the client, the music therapist is creating uniquely tailored opportunities for each client. From these perspectives, a theme emerges, i.e. the underlying relational (attunement) processes that exist within the therapeutic relationship inform the active individualization of music therapy interventions or experiences.

Conclusion

Research in neuroscience and music neuroscience has provided insights into the underlying neurological processes of specific music therapy interventions, leading to the creation of a neuroscience-informed approach to music therapy practice. Within the approach, there is a philosophical and theoretical discrepancy regarding the importance of the therapeutic relationship. However, a review of the music therapy literature reveals three emergent themes describing the integral role of the relationship. The following section applies the three emergent themes to the neuroscience-informed literature to address the discrepancy and explicate the integral role of the therapeutic relationship within the approach.

Chapter 4. The Findings

This chapter systematically reviews the importance of therapeutic relationship and how its conceptualization within neuroscience-informed music therapy can address the discrepancy within the approach. The chapter is divided into three sections; each one explicates a reason why the therapeutic relationship is integral to the music therapy process. Section I explores the differences through the lens of reason one: *the therapeutic relationship provides a safe environment integral to the music therapy process*. Section II explores the differences through the lens of reason two: *the therapeutic relationship enhances motivation and engagement through a collaboration between the client and music therapist*. Section III explores the discrepancy through the lens of reason three: *the therapeutic relationship informs the active individualization of music therapy interventions*. Each section addresses the role of the therapeutic relationship from a neuroscience perspective and present conceptualizations within the existing neuroscience-informed literature. A summary of findings is provided at the end of each section.

Section I: The Therapeutic Relationship Provides a Safe Environment Integral to the Music Therapy Process

Overview. The music therapy literature describes the integral importance of a safe environment in the music therapy process. A safe environment is defined as an environment in which the client experiences feelings of connection, acceptance, and accessibility, clear boundaries are established, and the music therapist is present and attentive to the client's needs (Allison & Roussow, 2013; Sena Moore & LaGasse, 2018; Quiros et al., 2012). Music therapists commonly describe safety in the relationship using words such as *within* and *in* (Hunt, 2015; Pasiali, 2014; Magee & Lewis, 2015). These words describe the role of the therapeutic relationship as providing the safe environment integral to the music therapy process.

Addressing the discrepancy. Safety and trust are foundational to the music therapy process and are established through the interactions between clients and music therapist (Allison & Rossouw, 2013; Pasiali 2014). Over time, safety and trust are built within the therapeutic relationship through non-verbal communication such as body language and quality of verbal responses:

Body postures and movement patterns of the therapist also may reflect emotions such as disapproval, support, humour, and fear. Tone and volume of voice, patterns and speed of verbal communication, and eye-contact also contain elements of subliminal communication and contribute to the unconscious establishment of a safe, healing environment. (Scaer, 2005, pp. 167-168).

Scaer (2005) emphasizes how the subtle, unconscious forms of communication can impact the establishment of a safe environment within the therapeutic relationship. In music therapy, the medium of musical communication can influence the quality of the interaction and establishment of a safe environment. Changes in musical tone, volume, prosody (or phrasing), meter, and harmony communicate and reflect affective states between client and therapist which contributes to the establishment of a safe environment. Tomaino (2012) articulates this point in the context of musical improvisation, stating that the interaction between music therapist and client plays “a role in enhancing clinical outcomes as well because it can approximate a conversational exchange by allowing for pauses, or exaggerating dynamics, or melodic contour to convey meaning and facilitate expectation” (p. 316). Therefore non-verbal and musical communication contribute to the establishment of a safe environment within a therapeutic relationship and enhance clinical outcomes.

The establishment and maintenance of a safe environment has important neurobiological implications. Allison and Rossouw (2013) describe how a safe, therapeutic space facilitates neuroplasticity and leads to stress reduction and enhanced clinical outcomes. Speaking from a neuropsychotherapeutic perspective, they argue that “approaches that provide safe environments will thus enhance the positive social interaction that is an essential element of health neural proliferation” (p. 23, para 3). A safe, therapeutic environment supports the regulation of serotonin, release of dopamine, and activation of the parasympathetic nervous system for both the client and therapist (Allison & Rossouw, 2013; Schore & Schore, 2008). These neurophysiological changes are important to consider for the neuroscience-informed music therapist because dopamine plays a vital role in neuroplasticity, the central focus of change from a neuroscience-informed perspective (Stegemöller, 2014). Such an environment may also reduce levels of norepinephrine, adrenalin, and cortisol in the limbic and paralimbic regions of the brain (Chanda & Levitin, 2013). The reduction of these neurochemicals is significant because high levels of cortisol (prevalent in high-stress or fearful states) have been shown to inhibit

neuroplasticity induction in areas of the brain such as the motor cortex (Sale et al., 2008). Recognizing the therapeutic relationship as providing a safe environment integral to the success of therapy demonstrates that it is not only the evidence-based intervention or musical stimuli that promote change in music therapy, a safe therapeutic environment enables the neurophysiological conditions necessary for neuroplasticity and therefore therapeutic change.

Conceptualizing the therapeutic relationship within a neuroscience-informed approach. Music therapists have established the importance of a safe, therapeutic environment in their clinical work (Baker, 2011; Panebianco & Lotter, 2019; Siponkoski et al., 2020). However, an analysis of the neuroscience-informed literature reveals that a connection between the therapeutic relationship and importance of safe environments has yet to be drawn.

A randomized-control trial conducted by Siponkoski and colleagues (2020) presents an opportunity within which to conceptualize the therapeutic relationship as integral to creating a safe environment. They describe how maintaining a safe, musical environment contributed to enhanced structural neuroplasticity in the prefrontal regions of survivors of traumatic brain injuries. Music therapy sessions in this study contained three modules: (a) rhythmic training, where participants played sequences or rhythms and coordinated bi-manual movements using body percussion and djembes; (b) structured cognitive-motor training, where participants played premade exercises on a drum set with varying levels of movement while accompanied by a music therapist on piano; and (c) assisted music playing, where participants learned to play their own songs with the help of a music therapist (Siponkoski et al., 2020). Musical improvisation was incorporated throughout to promote emotional expression. Participants were encouraged to create individual playing styles and rhythms during all modules while the music therapist provided a “safe background” (p. 10, para 1) using harmonic and rhythmic creations (Siponkoski et al., 2020). The concept of safety was articulated to describe the quality of the therapists’ intention and musical responses and to recognize the importance of relational factors, such as attunement and safety, in optimizing a participant’s experience in music therapy (Siponkoski et al., 2020). Providing a “safe background” during shared musical experiences may have contributed to reduced stress for participants through the use of synchronous activities, such as harmonic and rhythmic musical accompaniment, which have been shown to reduce levels of cortisol (stress hormone) in the limbic, para-limbic, and pre-frontal areas of the brain (Chanda & Levitin, 2013; Siponkoski et al., 2020). This example highlights how the music therapist was

present and attentive to the client's needs and, within the therapeutic relationship, synchronized to the client's playing to increase accessibility and provide support. The therapeutic relationship could therefore be conceptualized in this context as integral to providing a safe and supportive environment that facilitated the client's self-expression.

The therapeutic relationship can be similarly conceptualized using Baker's (2011) application of Melodic Intonation Therapy (MIT) with Tara, a female brain injury survivor presenting with aphasia and dyspraxia (impaired expressive communication ability). MIT is one of twenty Neurologic Music Therapy interventions and is often implemented by either music therapists or speech-language pathologists (Baker, 2011). The intervention uses functional phrases or statements that are intoned by the client (Thaut et al, 2014). Melodies are created to match the prosody and inflection of the goal phrase, such as "I want a cup of *coffee*" (Baker, 2011, p. 565). In her case study, Baker (2011) describes how she tailored the intervention to meet Tara's (the client) needs:

I created a melody for each phrase using a limited pitch range (usually no greater than a Major 6th) and composed at a register that aligned with Tara's vocal range. It was important that she was presented with "singable" melodies, otherwise she may have felt uncomfortable singing, and this may have limited her participation and therefore negatively affected outcomes. (p. 565, para 3).

Through the development of a therapeutic relationship, the music therapist gained valuable clinical information about Tara's singing range and musical preferences; the music therapist learned the importance of creating "singable" melodies that felt safe and comfortable for Tara, as opposed to the traditional "intoned statements" described in the MIT protocol (Thaut et al., 2014, p. 142). Considering the neurophysiological evidence, Baker's (2011) use of individualized melodies may have reduced feelings of fear and stress for Tara, triggering the down-regulation of norepinephrine, corticotropin hormone, adrenalin, and cortisol. Adapting the melodies to Tara's needs within the MIT intervention maintained a safe and therapeutic environment which may have triggered the up-regulation of serotonin and release of dopamine, thereby facilitating neuroplasticity. The adaptation of the MIT intervention increased accessibility, given Tara's neurological condition. By creating melodies that were tailored to Tara's vocal range, the music therapist created an environment of acceptance and connection. The therapeutic relationship can therefore be conceptualized within this case study as integral to providing a safe environment

through the individualization of the MIT intervention. This suggests that the adaptation and tailoring of music therapy interventions contributes to creating a safe, therapeutic environment that is contained within the therapeutic relationship.

Summary of findings. The music therapy literature describes the therapeutic relationship as providing a safe and therapeutic environment which is integral to a client's process in music therapy. From a neuroscience perspective, creating a safe environment within the therapeutic relationship reduces stress which results in the downregulation of norepinephrine, corticotropin hormone, adrenaline, and cortisol. A safe environment supports the upregulation of serotonin and the release of dopamine which enhances motivation and promotes neuroplasticity. Music therapists create a safe environment by individualizing experiences to meet the client's needs which promotes feelings of connection, acceptance, and accessibility. An analysis of the literature reveals that the therapeutic relationship can be conceptualized as providing a safe environment, demonstrating its integral role within neuroscience-informed music therapy.

Section II: The Therapeutic Relationship Enhances Motivation and Engagement Through a Collaboration Between the Client and Music Therapist

Overview. Music therapists from various approaches have emphasized the importance of collaboration in the therapeutic relationship (Aigen, 2014a; Rolvsjord, 2010; Stige, 2002). Rolvsjord (2010) describes how the nature of collaboration in the therapeutic relationship may change depending on the context, such as the clinical population and setting. Certain approaches to collaboration may impose an influential power dynamic (i.e., expert-client dynamic) while others may be more egalitarian. Resource-Oriented Music Therapy and Culture-Centred Music Therapy describe collaboration between the music therapist and client in relation to the entire music therapy process (i.e., development of goals, use of musical experiences, etc.). Conversely, approaches such as Nordoff-Robbins Music Therapy describe collaboration in relation to the musical experience (Aigen, 2014a). A common tenet is that the contributions of client and therapist are of equal value.

When working from a neuroscience-informed approach, specifically in neurorehabilitation or with neurodivergent children, collaboration may take on a different meaning. Due to communicative, affective, cognitive, or physical constraints, clients may not be able to collaborate in the development of their goals or development of the music therapy

process. Therefore, within the context of this inquiry, collaboration describes the active involvement of both the client and music therapist within the therapeutic relationship.

Certain perspectives in the neuroscience-informed music therapy literature allude to the nature of the therapeutic relationship as “music therapist-as-expert” (p. 150); the music therapist decides on and implements an intervention that best targets a client’s functional goals (Sena Moore & LaGasse, 2018). However, others have articulated the importance of the client’s agency in music therapy and incorporation of their personal music preferences to enhance motivation and engagement (Baker & Tamplin, 2006). This next section explicates how viewing the therapeutic relationship as an egalitarian collaboration between client and music therapist articulates its integral role within a neuroscience-informed approach.

Addressing the discrepancy. An analysis of the literature reveals that the discrepancy in neuroscience-informed music therapy can be addressed by viewing the therapeutic relationship as a collaboration. To articulate this point, the following topic was deemed important: increasing engagement and motivation by incorporating client-selected music and active music making experiences.

The incorporation of client-selected music can be described as a form of collaboration that serves to intrinsically motivate the client (Sena Moore & LaGasse, 2018). Intrinsic motivation describes a person’s will to engage in something because it is perceived as inherently interesting, enjoyable, or personally rewarding (Deci & Ryan, 2000). When asking the client to select music in an intervention, the music therapist is encouraging the client’s agency. The client is determining the experience and style in which it occurs which makes them a collaborator in the music therapy process. Having such an input may empower the client to participate in their music therapy process and serve as an intrinsic motivator (Sena Moore & LaGasse, 2018). The incorporation of client-selected music also has important neurophysiological implications. Music neuroscience research has demonstrated that listening to self-selected music increases cortical blood flow and activation of dopaminergic regions in brain areas associated with reward and pleasure (Blood & Zatorre, 1999). Chandra and Levitin (2013) state that addictive behaviours stimulate similar patterns of activation. This suggests that the incorporation of client-selected music may catalyse a similar response in music therapy. As stated by Stegemöller (2014), the increase in activation of dopaminergic regions stimulates neuroplasticity leading to therapeutic change.

Active music making has been described in the music therapy literature as a medium of collaboration; in the process of making music, the client and therapist are engaged in a shared, interpersonal and intermusical experience (Aigen, 2014a; Bruscia, 2014; Birnbaum, 2014). Music therapists working from a neuroscience-informed approach have described how active music making can be incorporated into existing interventions to promote engagement and increase motivation (Sena Moore & LaGasse, 2018; Weller & Baker, 2011). In their systematic review, Weller and Baker (2011) describe how Rhythmic Auditory Stimulation (RAS) can be adapted to incorporate active music making. RAS is one of the twenty Neurologic Music Therapy (NMT) interventions and is used in the rehabilitation of “functional, stable, and adaptive patterns in patients with significant gait deficits due to neurological impairment” (Thaut & Rice, 2014, p. 94). Weller and Baker’s (2011) systematic review describes how, within the RAS intervention, active music making can include the patient and allow them to become a contributor in the music experience. The authors specify that incorporating active music making can increase engagement and act as an intrinsic motivator, while also targeting non-functional tasks and behaviours (Weller & Baker, 2011). Research in music neuroscience has demonstrated that music stimulates the activation of dopaminergic regions in parts of the brain implicated with motivation, reward, and learning. It is hypothesized that these dopaminergic regions the limbic areas may also be involved in the regulation of neuroplasticity (Chanda & Levitin, 2013; Stegemöller, 2014). A motivating environment such as a collaborative, active music making experience may therefore provide an enhanced learning environment, stimulate dopamine production, and enhance clinical outcomes.

Conceptualizing the therapeutic relationship within a neuroscience-informed approach. Music therapists working from a neuroscience-informed approach have described incorporating collaborative experiences in their work to enhance engagement, motivation, and mood (Baker, 2011; Magee, 1999; Siponkoski et al., 2020). However, collaboration is described in relation to the nature of the intervention, rather than the nature of the relationship. This difference presents a need to conceptualize the therapeutic relationship as a collaboration between the music therapist and the client.

Magee’s (1999) music therapy case study, describing her work with Mr. D., provides an opportunity for viewing the therapeutic relationship as a collaboration. Through active musical improvisation, Magee (the music therapist) created an experience that was motivating, engaging,

and targeted functional communication and social goals. Mr. D, a 48-year-old male, was admitted to a neurorehabilitation hospital following a heart attack that resulted in severe brain damage. His injury resulted in cognitive, physical, social, and communication limitations: Mr. D experienced short-term memory loss, as well as persistent agitation and confused behaviour which impaired his ability to relate to and connect with others. He was referred to music therapy to improve his expressive communication skills through instrument playing and song choice, and to develop functional vocalizations in collaboration with a speech-language pathologist (Magee, 1999). Instrumental playing was used to target communication goals; specifically to prompt “yes” or “no” responses. However, all musical instrument playing was deemed unrealistic and abandoned due to the agitation it caused Mr. D.

Magee (1999) described building the therapeutic relationship as difficult due to Mr. D’s short-term memory loss. He was seen twice a week but did not remember the music therapist or the context of their sessions. However, the therapeutic relationship appeared to develop through improvisational singing of a greeting at the start of each session. During these “hello” songs, Mr. D. made eye-contact with the music therapist and he often vocalized or mouthed the word. The music therapist provided unique opportunities that fostered moments of communication and self-expression through attuning to his physiological markers (i.e., matching rhythm of breathing and pitch of the vocalizations):

Despite his labored breathing and his difficulty in controlling the volume of his vocalizations, Mr. D was able to imitate the therapist's melody in 'call and response' type phrases, and at times even anticipated the melody, singing in duet. Thus, within sessions some behavioral changes occurred. More importantly, changes occurred in his sung interaction with the therapist. (p. 25).

The therapeutic relationship can be conceptualized as a collaboration within this example by examining the ways in which the music therapist engaged the client. The “hello” song was improvised in a call-and-response format which provided opportunities for both Mr. D. and the music therapist to sing. The music therapist also engaged Mr. D. by matching his breathing rate and pitch of vocalization which can be understood as the music therapist incorporating the client’s contributions within the improvisation. By incorporating and utilizing the client’s contributions within the musical experience, the therapeutic relationship can be conceptualized as a collaboration within this neuroscience-informed case study. The successful engagement and

outcomes of the improvisation articulate the importance of collaboration and, therefore, demonstrate the integral role of the therapeutic relationship.

Summary of Findings. The incorporation of client-selected music and active music making experiences are two ways in which the therapeutic relationship can be conceptualized as a collaboration within a neuroscience-informed approach to music therapy practice. The use of client-selected music provides the client with an input in the music therapy process which may be intrinsically motivating. Incorporating a client's musical choices may also create a more aesthetically pleasurable experience which leads to increased activation of dopaminergic regions and enhanced neuroplasticity. Active music making may similarly increase motivation and engagement which also provides an enhanced learning environment and increases dopamine production. The results of this analysis demonstrate that the inclusion of motivating and engaging experiences in which the client can be a contributor in the music therapy process exemplifies the collaborative nature that is not only possible, but arguably integral within a neuroscience-informed approach.

Section III: The Therapeutic Relationship Informs the Active Individualization of Music Therapy Interventions

Overview. Music therapy is an inherently relational process characterised by a dynamic, individualized, and interactive engagement between the client and therapist. Individualization is an important element of music therapy practice because it is through tailoring interventions that music therapists create motivating experiences that facilitate the client's engagement (Magee & Stewart, 2015). In the context of this inquiry, individualization is defined as the in-the-moment tailoring of a music therapy intervention in response to the needs of the client (Baker & Tamplin, 2006; Birnbaum, 2014; Hunt, 2015). From a neuroscience perspective, the active individualization of music therapy interventions promotes neuroplasticity, and in turn, enhanced clinical outcomes (Stegemöller, 2014). The following section explicates how the therapeutic relationship informs the active individualization of music therapy interventions from a neuroscience perspective. The therapeutic relationship is then conceptualized within existing neuroscience-informed music therapy intervention protocols to articulate its integral role within the approach.

Addressing the discrepancy. An analysis of the literature reveals that the discrepancy in neuroscience-informed music therapy can be addressed by viewing the therapeutic relationship

as informing how music therapists actively individualize interventions in a music therapy session. To articulate this point, the following topics were deemed important: the intersubjective nature of music therapy and the role of explicit and implicit processes in creating an individualized experience.

Music therapy is an inherently intersubjective process that involves not only the clinical intervention or protocol, but the client and therapist's subjective experience of it (Birnbaum, 2014; Bruscia, 2014; Hunt, 2015). Intersubjective processes lie at the core of the therapeutic relationship and consist of a constant, bi-directional stream of explicit and implicit information; music therapists unconsciously impact their clients and they, in turn, impact the music therapist (Birnbaum, 2014; Schore and Schore, 2008). Therefore, music therapists actively individualize experiences in a session by responding to the verbal (explicit) and non-verbal (implicit) information conveyed by the client.

The intersubjective nature of music therapy can be understood from a neuroscience perspective through the lens of modern attachment theory, notably the work of Schore and Schore (2008). They describe the role of the right hemisphere, specifically the right frontal region, as playing an integral role in establishing and maintaining the relationship between a person's sense of self and the world. This region carries out operations that are "essential for adaptive interpersonal functioning and are specifically activated in the therapeutic alliance" (Schore & Schore, 2008, p. 13). Within a music therapy context, the client and therapist have a unique subjective experience of the therapeutic process (i.e., musical interventions) which activates their right frontal regions. The therapeutic relationship can therefore be understood as containing the unconscious and nonverbal communication of the right-front-regions between the client and therapist (Schore & Schore, 2008).

Intersubjectivity in music therapy exists through both explicit and implicit processes. Explicit information consists of the music therapist and client's conscious verbal or musical responses (Sena Moore & LaGasse, 2018; Schore and Schore, 2008). Implicit information lies beneath these conscious responses. Schore (2003) describes implicit information as the "moment-to-moment socioemotional information at levels beneath awareness" (p. 52) that includes subtle changes in facial expressions, body language, tone of voice, and prosody. Musically, this may include changes in tempo, melody, harmony, texture or timbre, and instrument choices (Birnbaum, 2014). It is important to state that these implicit processes are

bidirectional, meaning nonverbal information is communicated from client to therapist and vice versa (Schoore and Schoore, 2018). Implicit processes create a constant, bi-directional loop where the music therapist is unconsciously influencing the client and vice versa. These processes are important because they provide cues that the music therapist can integrate when tailoring an intervention to optimize the client's experience in therapy (Birnbaum, 2014).

Among the implicit processes is the active attunement between client and music therapist. Rooted in modern attachment theory and used to describe the relationship between infant and caregiver, the concept of attunement has also been adapted to describe the client-therapist relationship in the psychotherapy and music therapy literature (Baldini et al., 2014; Pasiali, 2014; Schoore & Schoore, 2008). In a music therapy context, attunement is defined as the physiological matching of affect through verbal, non-verbal, or musical synchrony (Schoore, 2000; Pasiali, 2014). Cozolino (2017) articulates the importance of attunement in building a strong, therapeutic relationship and facilitating neuroplasticity because the neurotransmitters oxytocin and dopamine are likely "activated in states of attunement, enhancing a client's ability to benefit from treatment by stimulating neuroplasticity" (p. 423, para 5). Through attunement processes, a client experiences feelings of trust and being understood by the therapist which may strengthen the therapeutic relationship. This can also enhance metabolic function, such as increased blood flow and oxygen availability which support neuroplasticity and learning (Cozolino, 2017).

Attunement processes occur through the perception-action mediated (mirror neuron) system. The mirror neuron system supports the learning, understanding, and prediction of another person's actions (Koelsch, 2009). Mirror neurons are found in the limbic system, prefrontal cortex, and posterior frontal and inferior parietal areas of the brain. They coordinate the auditory, visual, and nonverbal communication of a person by observing their movements and affective expressions. The neurons of the observer then replicate these patterns and transmit signals to the limbic areas which integrate the information to understand the experience of the observed (Homann, 2016). In a music therapy context, the therapist is constantly attuning to the client through their mirror system to create an optimal therapeutic experience for the client. For example, while engaging the client in live, interactive musical experiences, the therapist is actively adjusting musical elements (i.e., tempo, dynamics, rhythm, pulse, melody, harmony) "in immediate response to the [client's] functioning" (Magee, 2019, p. 10, para 3). Through their mirror-neuron system, the therapist is watching (perceiving), integrating, and replicating (acting)

the actions of the client. This perception-action mediating cycle forms the foundation for nonverbal, implicit communication and attunement processes:

...in the therapeutic relationship, the therapist's mirror neuron system can attune to the client's brain through this route, allowing the therapist to internally approximate the client's neuronal, physiological, and emotional processes. (Baldini et al., 2014, p. 220, para 3).

Within music therapy interventions, music therapists are actively responding to implicit cues and attuning to their clients to maintain engagement. These responses create an individualized music therapy experience, since clients respond differently to interventions. An examination of implicit and attunement processes demonstrates how they occur within the therapeutic relationship and how they inform the active individualization of interventions. This statement denotes the integral role of the relationship in neuroscience-informed music therapy.

Conceptualizing the therapeutic relationship within a neuroscience-informed approach. Music therapists working from a neuroscience-informed approach have established the importance of tailoring interventions to meet the clients' needs (Magee & Stewart, 2015; O'Kelly, 2016; Tomaino, 2013). However, an analysis of the neuroscience-informed literature reveals that the connection between implicit process within the therapeutic relationship and the individualization of interventions has yet to be drawn. This presents an opportunity to conceptualize the therapeutic relationship as integral to informing the individualization of clinical interventions within a neuroscience-informed approach.

The importance of the therapeutic relationship and attunement processes can be conceptualized in Baker and Tamplin's (2006) descriptions of neuroscience-informed protocols to use with patients living with disorders of consciousness (i.e., coma, vegetative states, minimally conscious states). They outline a protocol for working with minimally conscious patients in a coma, where the music therapist uses improvised musical selections to stimulate a response from the patient. With the aim of facilitating meaningful connection and orientation to the environment, the music therapist incorporates:

Improvised voice with phrases that rise and fall with the patient's breathing pattern. [Use of simple lyrics, such as the patient's name, may be appropriate, simple vocalization may be sufficient stimulation at this stage]. (Baker & Tamplin, 2006, p.53).

The protocol specifically instructs the music therapist to use the patient's breathing rate as a temporal cue during the improvisation and to modify the tempo to prompt a response. This protocol infers the use of implicit processes; within the therapeutic relationship, the music therapist is attuning and synchronizing to the client's internal rhythm (breathing) and using it as a foundation for their musical improvisation. Considering that the breathing rate differs depending on the client, the music therapist individualizes the intervention by attuning the client's unique breathing rate. From this example, the therapeutic relationship can be conceptualized as integral by containing the attunement processes (matching breathing rate to the improvised music) used by the music therapist to facilitate engagement.

A similar conceptualization can be made using the NMT intervention, Music in Psychosocial Training and Counselling (MPC). This intervention is used to help clients gain awareness of their physical and affective states and to increase their ability to regulate their levels of arousal to develop psychosocial functioning skills (Wheeler, 2014). The NMT Handbook (Thaut & Hoemberg, 2014) outlines how the protocols of MPC target two areas: affect or mood, and social competence. Though the role of the therapeutic relationship is not articulated in these protocols, the implicit processes that exist within the relationship are alluded to. In the protocol for "Dealing with Anger" (Wheeler, 2014, p. 342), the therapist prompts each client (the protocol describes a group setting) to express an angry feeling on their drum. The therapist then assists the client to navigate their anger:

The therapist sits facing the person who is expressing anger and helps him or her to deal with anger as follows:

- a) The participant is encouraged to express strong anger on the drum.
- b) The therapist matches the angry expression on their own drum.
- c) The therapist gradually makes their own drumming quiet and relaxed, influencing the participant to drum in a calm manner. (Wheeler, 2014, p. 343).

This protocol exemplifies how, through musical improvisation, the therapist is implicitly communicating a transition of affective states. Rather than explicitly and verbally directing the client, the music therapist is communicating the change musically by changing their style of playing. In step "b," the therapist is matching the affect (anger) expressed by the client before gradually guiding the client to an altered affective state in step "c" (calm); the therapist and client are in a repeated process of attuning to one another as they transition musically from angry

to calm states. By mirroring the client's anger, the therapist is sensing and analysing the musical expression (rhythm, dynamic, and texture) of the client before repeating it back. When the client attunes and mirrors the therapist's "calm" playing style, they are similarly sensing and analysing one another. Within the therapeutic relationship, the client and therapist are engaging in a shared and intersubjective experience; they are actively attuning to each other while transitioning between mood states. This understanding of attunement processes highlights the integral importance of the therapeutic relationship and demonstrates how it can be conceptualized as containing the implicit processes necessary for creating an individualized experience in music therapy.

Summary of findings. The individualization of interventions is important in music therapy because clients often differ in their music tastes, musical expressions, and clinical goals. It is the music therapist's role to learn the needs and preferences of their clients to create experiences that are engaging and effective in promoting therapeutic change (Birnbaum, 2014; Loewy, 2005; Sena Moore & LaGasse, 2018; Tomaino, 2013). For music therapists working from a neuroscience-informed approach, the individualization of interventions is important because it enhances metabolic function and dopamine levels which support neuroplasticity (Cozolino, 2017; Stegemöller, 2014). For all music therapists, regardless of approach, the individualization of clinical interventions is important because it creates experiences that are engaging and motivating, which leads to enhanced clinical outcomes (Baker & Tamplin, 2006; Magee & Stewart, 2015; O'Kelly, 2016). The analysis revealed that through implicit communication and attunement processes, the therapeutic relationship informs how music therapists tailor the experience, in the moment, to each client. Conceptualizations of the therapeutic relationship were proposed using existing intervention protocols to demonstrate its' integral importance in a neuroscience-informed approach to music therapy practice.

Conclusion

An analysis of the neuroscience-informed music therapy literature using a consideration of the therapeutic relationship as an integral element of music therapy practice reveals that the three roles of the therapeutic relationship in music therapy practice can be applied equally to a neuroscience-informed approach. Conceptualizations of the relationship within neuroscience-informed case studies suggest emerging implications for music therapy practice and research.

The following chapter discusses these similarities and emerging insights, while also revisiting the primary and subsidiary research questions of this inquiry.

Chapter 5. Discussion

Revisiting the Research Question

This philosophical inquiry aimed to articulate the integral role of the therapeutic relationship and address the philosophical and theoretical discrepancy within a neuroscience-informed approach to music therapy practice. The primary research question was: “Why should the therapeutic relationship be considered an integral element of a neuroscience-informed approach to music therapy practice and how might it be conceptualized?” Though the importance of the therapeutic relationship had been stated in the neuroscience-informed literature, its role in the music therapy process had yet to be explored. Additionally, the ways in which the relationship could be conceptualized had yet to be articulated within a neuroscience-informed approach. Findings of this inquiry revealed that the roles of the therapeutic relationship described in the music therapy literature can be equally applied in a neuroscience-informed approach. From this perspective, post-modernist philosophy was integrated within neuroscience-informed intervention protocols and case studies to present a philosophically and theoretically grounded conceptualization of the therapeutic relationship. While this philosophical inquiry focused on a discrepancy within a neuroscience-informed approach, findings revealed equally important parallels and emerging implications for music therapy practice and research.

Implications for Music Therapy Practice

The findings of this research articulate the axiological and clinical importance of the therapeutic relationship in a neuroscience-informed approach to music therapy practice. An analysis of the literature demonstrates that the relationship does in fact act as a mechanism of change in the therapy process. The findings demonstrate that way music therapists build and maintain relationships with their clients can make a difference in the outcome of therapy (Mössler et al., 2019; Tomaino, 2013). This has implications for neuroscience-informed music therapists of all levels; music therapists are encouraged to consider not only *what* interventions they use in their work, but *how* they implement them with clients.

Understanding the therapeutic relationship as a collaboration carries implications for music therapy practice. The existing neuroscience-informed literature, specifically intervention protocols, primarily details actions for the music therapist (Baker & Tamplin, 2006). Adopting a collaborative approach within the relationship prompts music therapists to consider the role of

their clients within these interventions as well. Viewing the client as an active and equal participant within the music therapy process implies that clinicians must not only consider the impact of their contributions, but also the impact of their client's contributions .

An analysis of the findings revealed a congruent goal within the neuroscience-informed music therapy literature of distinguishing music therapy from music medicine. Music medicine involves the use of music-based interventions that are typically implemented by nurses, doctors, or other medical professionals to manage symptoms of illness, such as pain or nausea (Bradt et al., 2015). The important distinction is that the outcome of music medicine is “not reliant on the relationship between the client and the person giving the intervention” (Magee & Stewart, 2015, p. 3). A key element that distinguishes music therapy from music medicine is the existence of a therapeutic relationship. As music therapists continue to advocate for the value of their work (specifically in medical and rehabilitative settings), it is important that they are able to articulate the integral role of the therapeutic relationship. The findings of this inquiry could therefore be used by music therapists in all settings to help when educating and advocating for music therapy to healthcare professionals.

Implications for Music Therapy Research

While this inquiry investigated the importance of the therapeutic relationship in neuroscience-informed music therapy from theoretical and philosophical perspectives, future research may seek to examine the question from a neuroscientific or neurophysiological perspective. However, quantitative neuroscience methods able to capture the essence of the therapeutic relationship are limited. This implies that music therapists seeking to examine the therapeutic relationship using neuroscience methods may find success by applying mixed-methods methodologies. The work of Fachner (2019) using EEG hyperscanning technology and Hunt's (2017a; 2017b) description and application of a neurophenomenology methodology may provide directions for future researchers. Music therapists seeking to examine the therapeutic relationship from a neuroscientific perspective may find additional direction from social neuroscience and interpersonal neurobiology, fields that are actively researching the dynamics of human relationships from neuroscience perspectives.

The inclusion of mixed-methods approaches has additional research implications; it may ensure ecological validity of future research findings. A central critique among music therapists is the lack of clinical context and thus ecological validity in current research findings (O'Kelly,

2016; Hunt, 2015; Tomaino, 2013). Ecological validity describes the ability to generalize the research results to real-life settings, specifically clinical music therapy settings (O’Kelly, 2016). The lack of ecological validity is due to the highly controlled environments and methods used in neuroscience research. In the context of a neuroscience-informed music therapy approach, specifically studies utilizing event-related designs and neuroimaging methods, the research often takes place in a highly controlled laboratory with the stimulus (i.e. music) presented outside of its context (Hunt & Legge, 2015). Research often examines one specific musical element at a time such as the melodic contour of a song (Levitin, 2013) or the rhythm of a particular drumbeat (Thaut et al., 2015), and therefore does not account for the “multifaceted uses of music” (de l’Étoile & Lagasse, 2013, p. 11) in a music therapy setting. The need for highly controlled protocols also inhibits neuroscience methods from being able to properly capture the “spontaneity and play” (Magee & Stewart, 2015, p. 3) inherent in music therapy. Tomaino (2013) states that new research paradigms are needed:

The type of dynamic, interactive, and personalized engagement that is a fundamental part of music therapy requires a different research paradigm and integration of neuroscience findings to truly understand how and why music therapy is effective. (p. 84).

Therefore, to measure the interactive and personalized engagement within the therapeutic relationship, music therapists may find a solution in the use of mixed methods approaches, such as neurophenomenology.

It is important to recognize that while certain neuroscience-informed perspectives (specifically intervention protocol manuals) do not discuss the therapeutic relationship or its significance in the music therapy process, this does not explicitly mean that the relationship is not of consideration for the clinician. Therefore, future research may seek to examine the importance of the therapeutic relationship from the perspectives of practicing neuroscience-informed music therapists.

Limitations

To date, Sena Moore and LaGasse’s (2018) article remains the only peer-reviewed conceptualization of a neuroscience-informed approach to music therapy practice. Though they characterize the approach in detail, theoretical and philosophical questions remain. This was a limitation for the researcher because it created difficulty in establishing clear inclusion and exclusion criteria for data collection. The use of a philosophical inquiry methodology did not

allow for discussions with music therapists working from a neuroscience-informed approach about how they conceptualize the therapeutic relationship in their work. Lastly, as a new music therapist and student-researcher, my limited experience may have impacted the research process.

Conclusion

In this philosophical inquiry, the importance of the therapeutic relationship in a neuroscience-informed approach to music therapy was explored. Literature that examined the approach and the importance of the therapeutic relationship in music therapy practice was explored and analysed to construct a new way of thinking. Three themes emerged which articulated the integral role of the therapeutic relationship in music therapy practice: the therapeutic relationship provides a safe environment crucial to success in therapy, enhances motivation and engagement through collaboration between the client and music therapist, and it informs the active individualization of music therapy interventions. The results of this inquiry revealed that the three roles of the therapeutic relationship in music therapy practice apply equally to a neuroscience-informed approach. These themes also present theoretical frameworks within which the therapeutic relationship can be conceptualized from a neuroscience-informed approach.

This research provides greater evidence for the recognition and integration of the therapeutic relationship within a neuroscience-informed approach to music therapy practice. This also strengthens the argument that the relationship should be viewed as an agent of change in neuroscience-informed music therapy. A framework was developed for conceptualizing the therapeutic relationship in neuroscience-informed music therapy with the hope that music therapists consider the role and potential impacts of the therapeutic relationships they build with their clients in music therapy.

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