Dalcroze Eurhythmics as an Ideal Support for Certified Music Therapists Working with Gross Motor Difficulties: A Philosophical Inquiry

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ABSTRACT

Dalcroze Eurhythmics as an Ideal Support for Certified Music Therapists Working with Gross Motor Difficulties: A Philosophical Inquiry

Keilah Morrison-Partridge

This philosophical inquiry investigated the potential of Dalcroze Eurhythmics as an ideal set of exercises for Certified Music Therapists to use when working with clients who experience gross motor difficulties. Data collected from literature on music therapy, Dalcroze music education, and motor rehabilitation, allowed the researcher to analyze the relationship between music and movement, with a particular focus on rhythm as a mechanism for facilitating motor coordination and control. Primary findings indicate that music processing engages a wide range of neural networks that are associated with movement, and that rhythmic entrainment, particularly auditory cueing can improve motor planning, timing, balance, gait, coordination, and spatial awareness. The six Dalcroze Eurhythmics exercises: follow, quick reaction, canon, interrupted canon, continuous canon, and replacement are conceptualized for both therapeutic and pedagogical applications to address gross motor challenges. Although limited literature exists on the direct clinical application of Dalcroze Eurhythmics in music therapy, parallels with Neurologic Music Therapy, particularly Rhythmic Auditory Stimulation and rhythmic entrainment, support its relevance. The study argues that Dalcroze Eurhythmics offers an adaptable, movement-based, and experiential framework for improving motor function and coordination. While the findings are theoretical, they provide a foundation for future clinical research and support the integration of Dalcroze Eurhythmics into music therapy practice. Additionally, the study suggests the potential for interdisciplinary collaboration with professionals such as physiotherapists, occupational therapists, creative arts therapists, and Dalcroze educators to expand its clinical applications across diverse populations.

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Table of Contents

List of Figures

Chapter 1. Introduction

Emile Jaques-Dalcroze has powerfully influenced how we think about the integration of the mind, body, and emotions in music learning. The Dalcroze philosophy asserts that the synthesis between the mind, body, and emotions is fundamental to learning music (Frego et al., 2015). As a philosophy, it has four pillars that highlight this essential integration: (a) Eurhythmics, which encompasses the physical, aural, and visual images of music in the mind; (b) The collaboration between improvisation, Eurhythmics, and Solfège (the combination of sight-singing and ear training) to improve expressive musicality and to enhance intellectual understanding; (c) The ideology that music may be experienced through speech, gesture, and movement; and (d) The assertion that individuals learn best when learning through their senses, therefore, music should be taught through the utilization of the tactile, kinesthetic, aural, and visual senses (Frego et al., 2015). The Dalcroze philosophy is connected to what is known as the Dalcroze method, or Dalcroze music education. Composer and pedagogue, Émile Jaques-Dalcroze, developed a music curriculum that would teach rhythm in a kinesthetic way using a student's entire body. This curriculum emphasizes dance and kinesthetic games as a way of teaching various elements of music (MasterClass, 2021). Dalcroze teaching methods include improvisation, rhythmic-solfège, and Dalcroze Eurhythmics.

The Dalcroze method refers to an instructional methodology that supports the development of concepts of rhythm, structure, and musical expression through movement. The aim is to develop physical awareness and to enable students to experience music using all of their senses (Music & Arts, 2017). There is a specific focus on the kinesthetic, or on "kinesthesia," which is the integration of information from the vestibular and proprioceptive systems which creates sensations of whole-body movement (Abraham, 2018). The vestibular system includes the sensory experience of balance and spatial orientation, whereas, the proprioceptive system includes the sensory experience of forces within the body's muscles, tendons, and joints (Abraham, 2018).

Personal Connection to the Research Topic

As a student music therapist, while incorporating some Dalcroze techniques that I learned within my music education background-training, I became really interested in the strong support I saw music therapists could offer when using music to support and organize movement. While music therapists instinctively integrate music and rhythm to organize and support fluid

movement, drawing on Dalcroze methods intentionally can greatly assist music therapists to conceptualize support for movement in organized and systematic ways. Through my music education, I learned about various Dalcroze activities, such as, tossing a ball to the musical phrase, passing a stick to the pulse of the music, jumping over a scarf in relation to the beat, and drawing shapes on a piece of paper to parallel the melodic contour. Another movement-oriented activity we learned was moving around the room, and when the music stopped, we had to play the instrument nearest to us. These movement-based musical experiences I learned offered ideas for several types of activities I could incorporate into my clinical practice that used music purposefully to support individuals experiencing gross motor difficulties. For instance, tossing a ball to the musical phrase engages coordination and motor response generation. As I accelerate the tempo of music, faster motor reactions are required by the client. This encourages the client to broaden their motor pattern repertoire and become increasingly aware of their range of motion (Habron, 2016). Incorporating music techniques from my music education background in my practicum placements, I noticed the way music and movement helped with synchronization of motor movement. From my initial observations in my placements, I observed that Dalcroze techniques could be engaging and stimulate improvement in gross motor coordination through music. Adding movement-based music experiences in clinical sessions appeared to encourage active participation from clients, especially children.

Relevance to Music Therapy

Dalcroze is a multi-faceted approach that includes Dalcroze music education, Dalcroze Eurhythmics, and Dalcroze music therapy. It can be seen in the fields of music, dance, theater, music therapy, and education. Dalcroze aims to teach individuals to embody music through the whole being and through sensations. It also supports people to develop critical listening, motor, and social skills, and all without the individuals being aware they are learning it (Dalcroze Society of America, 2019). According to the Dalcroze Society of America (2019), Dalcroze music therapists argue that music therapy and Dalcroze combined can support improvement of body and spatial awareness, self-expression, and mental alertness and attention. This combined approach can also foster creativity and imagination, peer acceptance, and group inclusion, and provide relaxation experiences. Despite this potential, though, little literature exists that supports music therapists to integrate Dalcroze methods as a key mode of support for people experiencing gross motor difficulties.

Dalcroze Eurhythmics is a key pillar of Dalcroze music education that arguably has important potential to support music therapists. It is a system of repeated rhythmic exercises designed to develop natural rhythms of the body, while training for economy and precision of movement (Brown et al., 1981). The Dalcroze Eurhythmics approach is categorized into six major types of exercises that encourage students to respond by clapping, stepping, using arm gestures, conducting, singing, or playing an instrument (Mead, 1996). The six exercises consist of the follow exercise, the quick reaction exercise, the canon exercise, the interrupted canon exercise, the continuous canon exercise, and the replacement exercise (Comeau, 1995).

In the early 20th century, a unique sensory combination was first described by Charles H. Farnsworth; it involves an experience where children were rhythmically drawing circles in the air or on a blackboard, in-sync to the feeling of a beat; thus, combining aural, kinesthetic, and visual senses (Campbell, 1991). During the early 1900s, experimental psychologists and physiologists were assessing the relationship between rhythmic perception and muscular movement (Campbell, 1991). Robert H. Stetson proposed that muscular changes were essential to the production and perception of all rhythm, inferring that physical activities played a role in developing rhythmic sensitivity (Campbell, 1991).

Dalcroze Eurhythmics, then, draws on this observed relationship and argues that using movement will reinforce taught concepts of rhythm, structure, and music expression, with the goal of heightening awareness and association of rhythm in music (Music & Arts, 2017). Ball exercises explore the interplay of space, time, and energy with music, so the exercises arouse muscular sensibility and regulate relations between the two poles of being physical and intellectual (Anderson, 2012). Anderson (2012) explains how rhythm enters the body through movement to provide a somatic experience of rhythm before providing an intellectual explanation of rhythm. Music education literature focusing on Dalcroze has emphasized how this musical learning approach promotes gross motor performance, by using body movements to understand musical rhythms (Srinivasan & Bhat, 2013).

According to Barnhill (2013), Dalcroze music education can be adapted for the development of a new generation of powerful movement-and-music based therapeutic practices. Moreover, it has specifically been suggested that Dalcroze Eurhythmics can be adapted for use in music therapy and movement contexts (Darrow, 2008; Situmorang & Mangunsong, 2018). These

statements and observations suggest further research and development of the connection between movement and music in relation to Dalcroze is warranted.

Rhythm plays a key role in synchronizing conscious, repetitive movements, which in turn shapes muscle activation patterns and controls movement through space (Yang et al., 2022). Thaut et al. (1999) foundationally established that rhythmic entrainment promotes improvement in human sensory and motor systems in rehabilitative training and learning. Entrainment cues, such as auditory rhythmic patterns, can change movement timing, improve spatial parameters, and optimize motor planning and execution (Yang et al., 2022). Dalcroze Eurhythmics adds value to music therapists working with clients with gross motor difficulties. The Dalcroze method is based on mobilizing the relationship between rhythm and movement.

This thesis aims, therefore, to contribute to the conceptualization of Dalcroze Eurhythmics in relation to support for individuals experiencing movement difficulties, arguing that Dalcroze Eurhythmics can be an ideal mode of support for Certified Music Therapists working with clients who experience gross motor difficulties. The level of specificity in the small body of literature on Dalcroze music therapy has not extensively explored music therapists addressing gross motor skills.

Statement of Purpose

The purpose of this research was to formulate and articulate an argument to position Dalcroze Eurhythmics as an ideal set of exercises for Certified Music Therapists to utilize when working with clients experiencing gross motor difficulties.

Research Questions

The primary research question was "Why is Dalcroze Eurhythmics an ideal set of exercises for Certified Music Therapists to use when working with clients who experience gross motor difficulties?" The subsidiary research questions were: (a) "What is Dalcroze Eurhythmics, and how does it describe the benefits of integrating movement and music?"; (b) "How does Dalcroze Eurhythmics support gross motor development?"; and (c) "What unique strategies can Dalcroze Eurhythmics offer Certified Music Therapists who work with clients experiencing gross motor difficulties?"

Key Terms

Certified Music Therapist was defined according to the Canadian Association of Music Therapists' (2020) description of music therapists who have successfully completed the

certification process. To be classified as a Certified Music Therapist (MTA), the individual must meet the CAMT's certification process requirements: completed a minimum Bachelor of Music Therapy degree or Graduate Music Therapy diploma or degree, completed a 1000-hour clinical internship under the supervision of a CAMT-approved MTA supervisor, successfully pass the Certification Board of Music Therapists exam, be a member in good standing of CAMT, and sign a statement of adherence to the CAMT Code of Ethics and Standards of Practice, as well as, meeting annual continuing education requirements (Canadian Association of Music Therapists, 2020).

Dalcroze Eurhythmics was defined according to a definition in MasterClass (2021), which states that Eurhythmics is an experiential music teaching method developed by Émile Jaques-Dalcroze in Switzerland. This Dalcroze method places an emphasis on dance and kinesthetic rhythm games, as a way of teaching various elements of music, including structure, rhythm, and musical expression. Dalcroze Eurhythmics is an active musical pedagogy based on body movement, which reveals the natural links between body movement and musical movement (Institut Jaques-Dalcroze, 2022).

Motor Development was defined according to Clark and Whitall (1989) as the changes in motor behavior over the lifespan and the process(es) which underlie these changes.

Gross motor difficulties were defined according to NHS Forth Valley's (2019) description of gross motor skills. Gross motor skills refer to large-movement patterns involving the whole body; some of these include walking, running, jumping, and hopping (NHS Forth Valley, 2019). Effective gross motor skills are important for developing fine motor skills, and if not developed, difficulties may arise and lead to poor coordination, poor balance, difficulty with hand-eye coordination tasks, and movements lacking fluency (NHS Forth Valley, 2019).

Clients were defined according to Bruscia (2014) as any individual or group that needs or seeks help from a therapist, in the form of services provided within a professional relationship, for the purpose of addressing a health-related concern or goal, using music experiences and the relationships formed through them.

Chapter Summaries

The succeeding chapters discuss various components of the philosophical inquiry research study. Chapter 2 describes the philosophical inquiry methodology and its role within the research process. Chapter 3 examines relevant literature in the fields of gross motor movement

and commonly experienced difficulties, the Dalcroze method, Dalcroze Eurhythmics, Dalcroze concepts, exercises, and techniques, Dalcroze music therapy, music and motor function, and rhythmic auditory stimulation (RAS), to provide foundational information to support the core research argument. Chapter 4 presents the findings of the study, describing the six types of Dalcroze Eurhythmics exercises, its purpose in music education and its therapeutic purpose in music therapy, and provides an example of a sample exercise. Finally, chapter 5 discusses the potential implications for music therapy practice, in addition to future research implications, and the limitations of the research study.

Chapter 2. Methodology

This chapter articulates the philosophical inquiry research methodology. It specifically explicates how it was implemented to support the development and articulation of an argument that highlights Dalcroze Eurhythmics as an ideal set of exercises to support Certified Music Therapists who work with clients experiencing gross motor difficulties. It details the research design, materials, data collection strategies, and data analysis procedures utilized to conduct the research study.

Design

This study was designed using a philosophical inquiry methodology which embraces philosophy as the practice of critically examining lay and learned assumptions about human life and the world (Stige & Strand, 2016). Some scholars link the role and value of philosophy to the clarification of concepts, although the scope can be broader, linking critical reflections on knowledge, ethics, and aesthetics in dialogue with sciences and various human practices (Stige & Strand, 2016). Philosophical inquiry is beneficial for clarifying concepts and verifying the validity of arguments (Stige & Strand, 2016). It was the ideal methodology to utilize for this research study which sought to clarify how Dalcroze Eurhythmics can be a helpful set of techniques for Certified Music Therapists supporting individuals with gross motor difficulties, by finding and explicating literature that supports Dalcroze Eurhythmics as an effective mode of support for gross motor difficulties. There are two broad philosophical inquiry frameworks utilized in this research: continental philosophy and Anglo-American philosophy. Continental philosophy centers the interpretation of and reflection upon the significance of various empirical and analytical matters of fact. The Anglo-American approach comprises the use of philosophical procedures to analyze and contextualize theory, research, and practice within the history of ideas (Aigen, 2005). By combining these two philosophical traditions, the research clarified existing concepts, which provide new perspectives on the use of Dalcroze Eurhythmics in music therapy and widen possibilities for further development of Dalcroze music therapy (Aigen, 2005).

Ethical considerations

The purpose of qualitative research is to explain, clarify and elaborate meanings of various aspects of the human life experience (Sanjari et al., 2014). In this qualitative research study, I was considered the research instrument, I was mindful of my own thought processes and biases that may have impacted my interpretations (Peters, n.d.). Through supervision, the

research data collection and analysis procedures remained objective from a third party reviewing the data. Other sources of support were through peer supervision, participating in self-care activities, and facilitating the processes of self-reflection and self-monitoring throughout the research process. Personal issues that may have arisen during the research process was another facet of ethical consideration to be mindful of, being aware of my involvement in the study and checking for signs of fatigue improved the quality of research.

Materials

The researcher gathered and documented information from relevant scholarly and grey literature sources using Microsoft Word documents. In addition, the researcher maintained a researcher journal for the purpose of documenting responses to readings and analytic ideas during the literature review and data analysis processes. The Microsoft Word documents and journal were stored on a personal, password-protected, laptop.

Data Collection

Data collection procedures included gathering information from scholarly books and journals, professional websites, blogs related to Dalcroze music education, and gross motor development and difficulties; all of which were located through searching Concordia University's Sofia Discovery tool, Google Scholar, PsychInfo, Concordia Spectrum, ProQuest, and PubMed. The search terms encompassed various combinations of the following words: Dalcroze music therapy, Dalcroze music education, music therapy, Certified Music Therapist, Dalcroze, movement, difficulties, challenges, Eurhythmics, gross motor, and music education. The data sources were delimited to English-language publications from 1980 to 2025, reflecting the researcher's primary language and the supervisor's recommendation to prioritize current, relevant sources. Until saturation was reached, the researcher continued to collect data and input the gathered information into Microsoft word documents for each chapter. The word document contained detailed notes about each source, including the author's names, year, title, type of document, along with key themes and findings from each source.

Data Analysis

Aigen (2005) states that a body of philosophical thought should be coherent, consistent, systematically organized and have explanatory value (p. 529). To achieve this goal in the data analysis process, the researcher analyzed the collected data by clarifying terms, exposing/evaluating assumptions, and developing connections between ideas and how they

related to current philosophical and theoretical perspectives (Aigen, 2005). The structure the researcher decided to use to present the argument included a brief description of the Dalcroze Eurhythmics technique, music learning as a purpose, a sample exercise, and music as a therapeutic purpose. The researcher sought guidance from their thesis supervisor to ensure questions from the operationalized argument had been addressed, and that examples and counterexamples critiquing opposing views had been explored. Additionally, the researcher, in consultation with their thesis supervisor, verified that the arguments presented were coherent and concise regarding the gathered and analyzed data, that the research questions had been addressed, and that the conclusions drawn were valid.

Chapter 3. Literature Review

The literature and resources reviewed for this chapter specifically focus on gross motor difficulties and the utilization of Dalcroze Eurhythmics in music therapy contexts, including its concepts, exercises, and techniques. At the time of writing this thesis, there was no literature on Dalcroze music therapy and gross motor difficulties. However, from related literature on Dalcroze Eurhythmics, its concepts, exercises, and techniques, gross motor difficulties, and music therapy, connections can be drawn to its application in Dalcroze music therapy. The connection between music and motor functioning, rhythmic entrainment, and rhythmic auditory stimulation in relation to Dalcroze Eurhythmics and its application in music therapy will be explored.

Gross Motor Movement and Commonly Experienced Difficulties

Gross motor actions entail large movements completed by the whole body, and difficulties can be defined, or observed, as poor coordination, poor balance, difficulty with hand-eye coordination tasks, and movements that lack fluency (NHS Forth Valley, 2019). There are several aspects of gross motor development that, when impaired, can lead to overall difficulty with gross motor function. When muscle tone, for example, is low, it can result in overly relaxed muscles that make an individual's gross motor movements appear loose or uncoordinated (NHS Forth Valley, 2019). Individuals with low muscle tone can experience difficulty controlling and coordinating their movements, they tire easily, their posture can be affected, and they require increased effort to achieve movement (NHS Forth Valley, 2019).

Balance is also connected to gross motor function, and difficulties with balance can present as poor posture, difficulty with activities such as riding a bike or playing team sports, and inability to remain still in a seated position (NHS Forth Valley, 2019). Proprioception, relatedly, is the sensation received from the muscles and joints that directs attention to the body and its location in space (NHS Forth Valley, 2019). Difficulty with proprioception can manifest as decreased body and spatial awareness, and challenges with throwing, kicking, or catching a ball (NHS Forth Valley, 2019).

Joint instability also contributes to gross motor difficulty and is observed as an increase of movement around joints. This movement, importantly, affects fluency of movement and coordination, and it leads to poor body awareness, frequent fatigue, and joint pain (NHS Forth Valley, 2019). Motor planning, the ability to organize movement, is another potential area for

difficulty to appear, it can lead an individual to struggle with movement sequencing and conducting planned movements smoothly (NHS Forth Valley, 2019). Finally, bilateral integration is the ability to coordinate both sides of one's body, and difficulties with this gross motor skill can impact a person's ability to complete everyday tasks, such as dressing, handling cutlery, and handwriting (NHS Forth Valley, 2019).

Gross motor difficulties are often observed as issues with gait, balance, cadence, and stride length – all of which can be due to varying factors. Psychomotor slowing, for example, can alter gait velocity, cadence, and stride length, which may be related to a mental health diagnosis, such as schizophrenia (Nuoffer et al., 2022). Abnormal changes in gait can also be related to neurological or musculoskeletal issues (Stefanacci & Wilkinson, 2023). According to Nuoffer et al. (2022), psychomotor slowing can lead to slower velocity, lower cadence, and shorter stride length; and this slower gait velocity is linked to other severe hypokinetic movement disorders and negative symptoms. Psychomotor slowing impairs both fine and gross motor movements, including slowed writing, slowed gait, aberrant posture, increased sway, and diminished speech, facial and gestural expression (Nuoffer et al., 2022). In Nuoffer et al. (2022), they studied how psychomotor slowing can alter gait velocity, cadence, and stride length, however, they suggested that by restoring the balance in the sensorimotor network, motor abnormalities and gait parameters may be alleviated. In conclusion, gross motor difficulties can include joint instability, poor coordination, and issues with gait, balance, cadence, and stride length.

The Dalcroze Method

Emile Jaques-Dalcroze, the founder of Dalcroze music education from Vienna, Austria, actually developed the method in Geneva, Switzerland where he taught at the Geneva Conservatory. His philosophy, which informed the development of the method, was about establishing a distinct relationship between rhythm and body movement (Berger & Shore, 2015). Dalcroze aims to embody music through the whole being, through sensations; develop critical listening, motor and social skills without the individuals being aware they are learning it (Dalcroze Society of America, 2019). In Dalcroze education, hearing leads to moving, to feeling, to sensing, to analyzing, in turn translating to goals set by the music teachers (Dalcroze Society of America, 2019).

Emile Jaques-Dalcroze developed Dalcroze music education in the early twentieth century. This pedagogical methodology relied on a concept of the existence of a harmony

between inner hearing, thought, and gesture; and a balance between emotion and action (Institut Jaques-Dalcroze, 2022). The Dalcroze method, also known as Dalcroze education, refers to the general education and pedagogical philosophy. Dalcroze education is divided into three main categories: Eurhythmics- the engagement of the body in rhythmic movement and active listening, solfège- the development of internal melody and harmony, along with a holistic response to musical notation, and improvisation- creative spirit with the voice, an instrument or the body brought out through musical improvisation (Dalcroze Society of America, 2019). Dalcroze Eurhythmics foregrounds the role of movement in musical activity and understanding, as well as the usefulness of exploring and harnessing music-movement relationships in pedagogy, therapy and performing arts (Dalcroze Society of America, 2019).

Dalcroze is a playful, experiential approach to music education that awakens, develops, and refines musicality through rhythmic movement, ear-training, and improvisation. The aim is to deepen musical understanding and improve body awareness (Dalcroze Society of America, 2019). It is a music and movement education program, but it has been applied in music therapy contexts to address goals such as body and spatial awareness (Dalcroze Society of America, 2019). Dalcroze believed sensory experiences and kinesthetic learning were vital for the learning process (Dalcroze Society of America, 2019). Dalcroze's philosophy stated that the body is the locus of experience and expression, and that personal development relies on building a harmonious relationship with one's physical experience, emotions, and intellect (Dalcroze Society of America, 2019). Additionally, musical rhythm is the direct expression of the human soul, gestures and thought, and Dalcroze considers it to be the ideal medium for educating (Dalcroze Society of America, 2019). Dalcroze education principles emphasize that music is a motivator, stimulator, and regulator; movement is the primary means for learning; actively listen; continuously adapt to spatial, social, and musical contexts; balance time, space, and energy for expressive ease; and prioritize discovery-based, experiential learning through imagination, improvisation, play, and social interaction (Dalcroze Society of America, 2019).

The Dalcroze method is always alive, fresh, and adaptable in response to any music class (Johnson, 1993). Dalcroze emphasized that his materials only served as a reference for teachers who had personally experienced Dalcroze teaching, and therefore, could not be used as guidebooks for teaching (Juntunen, 2002). He did not provide instructions for teachers regarding how to create and present exercises, as Dalcroze wanted to leave the door open for personal

interpretation and a variety of ways to present the lesson material (Juntunen, 2002). Dalcroze teachers are expected to create their own ideas, exercises, games, and materials, then present it all in a logical developmental sequence (Juntunen, 2002). Various games and activities can be created to refine and reinforce reading and writing skills while consistently maintaining the link with aural music (Johnson, 1993).

Dalcroze Eurhythmics

According to Berger and Shore (2015), Eurhythmics is defined as the coordination of the ultimate entrainment within, and the embodiment of music rudiments, in order to attain the highest perception of self and music. The aim is to achieve peak performance of musical expression. Berger and Shore (2015) further explain that music moves in time and space, and its kinesthetic aspect within music education unifies the mind and body by integrating the physical with the emotional sensitivity required in music expression. Music embodies a physical element that is movement-based (Berger & Shore, 2015), which strongly positions Dalcroze Eurhythmics as an ideal framework for addressing clinical goals that can be supported using these techniques.

Dalcroze views bodily movement as an experience that is felt by a sixth sense, the muscular sense (Farber & Parker, 1987). According to Farber and Parker (1987), the muscular sense consists of the relationship between the dynamics of movement and the position of the body in space, the duration of movement and its extent, the preparation of a movement and its performance, and it demands the collaboration of all the muscles. Eurhythmics demonstrates the natural links between bodily movement and musical movement because its techniques engage the body in rhythmic movement and active listening (Dalcroze Society of America, 2019). In a Dalcroze Eurhythmics class, a teacher improvises music at the same time as students move in the space using certain guidelines that are specific to the musical piece (i.e., students hear a specific cue, they clap the beat or walk around the room stepping the beats). The teacher shapes the music according to the rules of the task, and, importantly, to their observations of the student's physical responses and actions.

Dalcroze Eurhythmics is a rhythmic, movement-based music training approach designed to teach musical elements like rhythm, pitch (melody), phrase, harmony, timbre, dynamics, and form; and, therefore, deriving body sensations and responses while training for autonomy and precision of movement (Berger & Shore, 2015). This intentional perceptual-motor training

facilitates motor development through the optimal use of as many sense modalities as possible (Brown et al., 1981).

The Dalcroze method teaches concepts of rhythm, structure, and musical expression through movement to develop physical awareness and promote experiencing music using all of the senses, in particular the kinesthetic sense (Music & Arts, 2017). Using movement is intended to reinforce taught musical concepts with the additional goal of heightening awareness and association between the relationship of rhythm and movement to music (Music & Arts, 2017). The intentional training of kinesthetic abilities and the assertion of a relationship between music and movement are intimately connected; and this intimate connection is at the heart of the Dalcroze approach to instruction (Anderson, 2012). Anderson (2012) explains that rhythm enters the body through movement to provide a somatic experience of rhythm before providing an intellectual explanation of rhythm. This is achieved through different Dalcroze Eurhythmics exercises and techniques.

Dalcroze Concepts, Exercises, and Techniques

Dalcroze teachers may devise exercises or help students create movement that links directly to the concepts of the lesson found in the song (Johnson, 1993). The basic concepts of the Dalcroze method are time concepts, energy concepts, and space concepts (Mead, 1996). Time concepts include tempo (fast or slow), tempo beat, duple or triple meter, changes in tempo, fundamentals of movement (i.e., walking, running, sliding), and patterns (Mead, 1996). Energy concepts include dynamics (loud or soft), accented or unaccented notes, changes in dynamics, and articulation (staccato or legato) (Mead, 1996). Space concepts include sound and silence, high and low pitches, directions of melody (ascending, descending, or static), steps or leaps, melodic patterns, tonic melodies, and modes (major or minor) (Mead, 1996).

In the educational setting for Dalcroze lessons, the room set-up can vary depending on the space available and the lesson plan. Ideally, there is lots of space for the students to move around. The role of the teacher is improvising music at the piano, however, recorded music and composed music can be used as well (Dalcroze Society of America, 2019). The movement in the classroom tends to be locomotor, but it can also be gestural depending on the activity (Dalcroze Society of America, 2019). Classes generally involve groups of students who are encouraged to interact with one another based on the activities in the lesson plan (Dalcroze Society of America, 2019). Typically, the piano is the main instrument used by the teacher for each of the activities,

although other instruments can be used, such as percussive instruments, drums, the voice, song recordings, and other solo instruments (violin, flute, cello, harp, guitar, recorder, etc.) (Dalcroze Society of America, 2019).

The Dalcroze Eurhythmics approach is categorized into six major types of exercises that encourage students to respond by clapping, stepping, using arm gestures, conducting, singing, or playing an instrument (Mead, 1996).

The six exercises include:

1. The follow exercise: the students respond instinctively to the music, using natural movements of walking, gesturing, and responding in the space with precision and sensitivity (Mead, 1996).
2. The quick reaction exercise: the students are instructed to change their response whenever they hear a specific musical signal or verbal command (Mead, 1996).
3. The canon exercise: the students respond to the teacher's improvisation through imitation one measure later; it utilizes memory, concentration, and alertness (Mead, 1996).
4. The interrupted canon exercise: the students provide an imitative response to the teacher's music immediately, mid-phrase, creating an echo before resuming the cycle (Mead. 1996).
5. The continuous canon exercise: the teacher plays a motif, which is then echoed by the students. However, as the students play the echoed motif, the teacher carries on with the next motif, thus creating a continuous canon where the students are repeating the motif they just heard, while listening to the new motif simultaneously (Comeau, 1995).
6. The replacement exercise: a musical element is replaced in an already familiar rhythmic motif by a rest (Comeau, 1995). An example described in Comeau (1995) is in a musical excerpt consisting of four quarter notes, and the last quarter note is replaced by a rest, creating a new motif.

Dalcroze stated that the three fundamental elements of music are melody, rhythm, and dynamic energy, with the last two elements being a function of movement (Comeau, 1995). One of Dalcroze's techniques a teacher may use in the classroom is modeling, which is where the teacher performs the technique and the student imitates (Caldwell, 1993). Another technique

used by Dalcroze teachers is automation, which is the memorization of the music and the exact repetition of the sequence of muscular responses involved in performing it (Caldwell, 1993). Although the techniques are not exclusive to the Dalcroze method, they are core aspects of the method that are uniquely mobilized. Mead (1996) states that young students tend to learn best through everyday play activities that are related to musical concepts found in songs or singing games, which is known as the technique of gamification. On the contrary, older students prefer the challenge and heightened activity experienced in Dalcroze's quick reaction, interrupted canon, and canon exercises (Mead, 1996).

To become a certified Dalcroze educator, one must complete one of the several accredited teacher training programs, which are recognized internationally and include obtaining either a professional certificate, a license, or a Diplôme Supérieur. The Dalcroze professional certificate is well suited for those who wish to teach introductory courses in Dalcroze music education to students of any age, up until an early-intermediate level (Dalcroze Society of America, 2019). Individuals can also participate in training programs to receive Level 1 and Level 2 credentials, working towards the certification, but are not fully certified until they take the Dalcroze Professional Certificate course. If an individual participates in the training program to become licensed as a Dalcroze educator, they are able to teach all levels in Eurhythmics, solfège, improvisation, plastique animée, and pedagogy (Dalcroze Society of America, 2019). This level of certification is considered to be the most advanced Dalcroze credential offered in the United States. Lastly, the Diplôme Supérieur is the highest credential in Dalcroze studies, and the training program is only offered in Geneva, Switzerland (Dalcroze Society of America, 2019). Those who hold this level of certification are considered to be representatives of the Dalcroze method and are able to award Dalcroze credentials, as well as direct Dalcroze teacher-training programs. This training program requires two to five years of studying and several additional years to earn the license. According to the Dalcroze Society of America (2019), applicants to the training program must have extensive Dalcroze teaching experience and be able to pass a rigorous examination at the Institut Jaques-Dalcroze in Geneva, Switzerland.

Émile Jaques-Dalcroze developed Eurhythmics for the purpose of music education; however, over time, he developed explicitly therapeutic aims (Habron, 2014). Wagner (2016) draws a correlation between Dalcroze Eurhythmics and music therapy by explaining how Dalcroze uses music as a mean to address human qualities, such as consciousness, personality,

temperament, the subconscious, imagination, thoughts, behavior, actions, confidence, the muscular system, the nervous system, concentration, and freedom of spirit. Music therapy theories and approaches argue that music can be mobilized as a means to an end with many music therapists focusing on music in order to facilitate change (Wagner, 2016). The difference between music therapy and music education is the manner in which music is used within the two disciplines – in therapy, music, and the therapeutic relationship, are the means through which goals are achieved to improve health and well-being, whereas in education learning music is the purpose (Habron, 2014). Although, in Dalcroze music education, music is not only the purpose, but also the means (Habron, 2014). Habron (2014) demonstrates a comparison between music therapy and music education. Music therapy strongly promotes wellbeing, whereas music education more strongly promotes the development of skills, knowledge, or understanding; both fields promoting the improvement of skills (Habron, 2014). Music therapy has internally focused goals that are client-centered, whereas in music education there is a combination of internally and externally determined goals; both fields being goal-driven (Habron, 2014). Music therapy and Dalcroze Eurhythmics both view musical interactions as communicative and improvisational, and are based on synchrony (Habron, 2014). The Eurhythmics approach to music education parallels music therapy goals in the realm of rehabilitation and health (Wagner, 2016). When the Dalcroze approach is used therapeutically, the goal is to encourage the client to take responsibility for their own therapy (Habron, 2014).

There are numerous parallels between the structure of a music therapy session and a Dalcroze music education lesson. According to Vasil (n.d.) a basic lesson structure for elementary music education, including Dalcroze music education, follows the structure of a warmup/hook, imitate/new content, explore/play with content, create/perform the content/extend the concept, analyze/reflect/assess, and a cooldown. A music therapy session is broken down into three sections: the beginning, the middle, and the end (Borczon, 2017). The beginning of the session introduces the client to the musical experience and can be in the form of an opening song (Borczon, 2017). The middle part of session is when the client moves into a more therapeutic relationship with the music and the therapist, and subtle changes may be made by the therapist in response to the client's responses to the experiences (Borczon, 2017). At the end of the session there may be a summary of all the things that were completed in the session, or a closing song to wrap up the session (Borczon, 2017). Comparing the two structures, both begin and end with a

warmup/opening and cooldown/closing section that help round out the session. I would draw a parallel between the middle sections of each structure, as in the Dalcroze lesson the teacher is adjusting the student's experience with the new content as they learn and respond, and in a music therapy session, the music therapist is adapting the experience to the client's responses to the music. A treatment plan in music therapy is similar to a lesson plan in music education, both have a plan to develop one's skills and have structured sessions/lessons to help achieve these goals. A music teacher creates an assessment of the student's knowledge of music, as a music therapist assesses the client's strengths and weaknesses to determine the clinical goals and objectives.

Dalcroze Music Therapy

While there is little literature that is specifically focused on the use of Dalcroze techniques in music therapy, or Dalcroze Music Therapy, the Dalcroze Society of America (2019) does assert that Dalcroze music therapy addresses body and spatial awareness, fosters self-expression, improves mental alertness and attention, fosters creativity and imagination, encourages peer acceptance and group inclusion, and provides relaxation experiences. Darrow (2008) previously argued that many of the basic skills and principles of the Dalcroze approach to music education can be adapted for use in music therapy, and music therapists can incorporate Dalcroze Eurhythmics into their clinical practice. They can do so by encouraging clients to move and express themselves as an integral part of the process of accomplishing therapeutic goals. Music therapists can also, according to Darrow (2008), use musical games in therapeutic settings with clients to address motor difficulties.

Music therapists trained as Dalcroze music therapists, or who use Dalcroze Eurhythmics in their practice, may view Eurhythmics as a useful strategy to identify the role of movement in musical activity. It may also support their understanding of its usefulness in the exploration and harnessing of music-movement relationships in the music therapy setting (Habron, 2016). According to Situmorang and Mangunsong (2018), Dalcroze Eurhythmics can be beneficial to music therapists working with clients who are experiencing motor difficulties because this method is well-suited to the improvement of physical awareness.

Music and Motor Function

Music processing and production is distributed throughout the cortex, subcortex and cerebellum, and this processing can be utilised to improve motor functioning (Volkmar, 2019).

Schaefer and Overy (2015) studied how specific motor network regions (basal ganglia, premotor cortex, supplementary motor area, cerebellum) are involved in the listening and synchronization of movements to music, leading to increased cerebellar activation. When there is impairment in the cerebellum, however, it can lead to impaired motor synchronisation (Volkmar, 2019).

Research suggests that rhythm, a key musical element, can serve as a tool to help clients with gross motor difficulties synchronize movements, modulate muscle activation patterns, and control movements in space (Yang et al., 2022). Cibrian et al. (2020) observed that the use of music, and rhythm in particular, can enhance the development of motor skills, since rhythm activates motor areas of the brain and facilitates movement responses. Music, and therefore rhythm, is a facilitator to assist individuals in improving their understanding of how to control their movements, thus improving their motor coordination (Cibrian et al., 2020). The force and timing control of movements are important in one's ability to manipulate objects and complete daily activities (Cibrian et al., 2020). Fostering continuous practice of movements utilizing rhythmic cues can lead to stability in motor control (Cibrian et al., 2020).

Rhythmic auditory cueing is a specific rhythmic entrainment technique that can provide a predictable structure for the stabilisation of movement patterns and, accordingly, the facilitation of motor planning (Hardy & LaGasse, 2013). Rhythm integrates basic levels of sensory perception and motor entrainment into complex cognitive processes and motor adaptations; and rhythmic interventions are claimed to improve the motor skills of individuals, hence, improving their quality of life (Bharathi et al., 2019). Bharathi et al. (2019) state how listening to music and the use of rhythmic patterns improves attention, which is a sign of improved sensory integration. This may help in connecting the individual with their own body rhythm via rhythmic entrainment. At the stem of the physical responses is the musical element of rhythm (Lewis, 1998). Music containing isochronous pulses (a series of events or signals that occur at perfectly regular, equal time intervals, similar to a metronome) elicits motor responses at various levels in the brain and behavioral responses (Schaefer & Overy, 2015). These types of motor responses typically are used in pedagogical and clinical practice since they induce movement where motor functions are impaired (Schaefer & Overy, 2015). It is important to have a tool, such as music containing isochronous pulses, that aids in eliciting motor responses, as many adults find it difficult to synchronize their movements to a beat with perfect accuracy, even with years of training during childhood, thus having a tool that elicits rhythmic entrainment can be beneficial

in achieving motor goals (Schaefer & Overy, 2015). This is the reason why rhythms based on a steady beat are incorporated into Neurologic Music Therapy (Schaefer & Overy, 2015).

In a music therapy session, a client may play an instrument, which leads to improvement in manual skills through continuous fine motor skill training (Yang et al., 2022). However, playing an instrument requires multiple skills; it engages integration of auditory, visual, and somatosensory information and motor coordination of both gross and fine motor movements. Being able to play an instrument involves hand-eye coordination, which is a type of motor difficulty that involves both gross and fine motor skills, and falls under the category of perceptual motor skills (Ayaga, 2024). Perceptual motor skills are the combination of visual, auditory, and tactile sensory abilities, all involved in the ability to play an instrument (Ayaga, 2024). Listening to music, playing games, and rhythmic movements accompanied by music improves motor skills, balance of physical movements, increases motor coordination, and reinforces finger control (Imankhah et al., 2018). Mey (2014) mentions that action songs or rhythmical music that involve rhythmic actions of the body, such as clapping, jumping, or marching to music also develop gross motor skills, auditory-motor coordination and refine body awareness.

Rhythmic Entrainment

Neurologic music therapy (NMT) has been one approach to music therapy that has significantly advanced the development and study of techniques aimed at improving gross motor functions. NMT consists of twenty techniques that are outlined by the diagnostic treatment goal, and the role of music, or mechanisms in the processes of music perception and music production to achieve treatment goals (Thaut & Hoemberg, 2016). One technique in particular that relates to Dalcroze Eurhythmics the most is rhythmic auditory stimulation (RAS), as they both center their technique around rhythm and its connection to movement.

According to Thaut and Hoemberg (2016), rhythmic entrainment is the ability of the motor system to couple with the auditory system and drive movement patterns. Rhythmic entrainment, which is a key mechanism of rhythmic auditory stimulation (RAS), aids in improving the human sensory and motor systems in rehabilitative training, such as, in music therapy sessions (Yang et al., 2022). According to Yang et al. (2022), rhythmic entrainment promotes improvement in human sensory and motor systems in rehabilitative training, and

entrainment cues, such as, auditory rhythmic patterns can alter the timing of movement to improve spatial and force parameters and optimize motor planning and execution.

According to Darrow (2008), one of the goals of Dalcroze Eurhythmics in therapy is to improve body awareness and enable clients to develop spatial awareness through rhythm, structure, and musical expression. RAS and Eurhythmics are both linked by their use of rhythm to support and improve motor function. The RAS technique, therefore, aims to develop and maintain physiological rhythmic motor activity through rhythmic auditory cues, targeting gait rehabilitation (Bukowska et al., 2016). Patterned Sensory Enhancement focuses on the facilitation of movements associated with daily life, using complex musical elements, such as, pitch, harmony, meter, rhythm, and dynamics to enhance and organize movement patterns in time and space, with a goal of improving muscle coordination, strength, balance, postural control, and range of motion (Bukowska et al., 2016). Therapeutic Instrumental Music Performance uses musical instruments to simulate and facilitate functional movements to improve range of motion, limb coordination, postural control, dexterity, body perception, and sensation (Bukowska et al., 2016).

Rhythmic Auditory Stimulation

Rhythmic Auditory Stimulation (RAS) is a neurologic technique that utilizes physiological effects of auditory rhythm on the motor system to improve movement control, facilitate rehabilitation, development, and maintenance of movements (Thaut & Hoemberg, 2016). RAS has been shown to be effective in gait training to improve functional, stable, and adaptive walking patterns in patients with gait deficits (Thaut & Hoemberg, 2016). The key component of RAS is auditory entrainment, which is the body's ability to synchronize its movements rhythmically to the music (Kwak, 2007). In relation to sit-to-stand movements, the actions can be cued in the music by rhythm, pitch, melody, or loudness (Peng et al., 2011). One prominent music element that yields positive outcomes is the use of metronomes. Alves-Pinto et al. (2016) stated that gait training using rhythmic sound properties, such as the metronome, can positively affect walking kinematics. Outcomes of RAS for clients with gross motor difficulties can be improved body posture, balance, gait patterns, velocity, cadence, stride length, and symmetry, as well as kinematic improvements of knee and hip ranges of motion and trajectories (Kwak, 2007).

RAS functions both as an immediate entrainment cue during movement and as a facilitative training tool to promote more functional gait patterns (Thaut & Hoemberg, 2016). It uses rhythmic auditory cues with either a metronome or music to synchronize auditory rhythm and motor responses (Gonzalez-Hoelling et al., 2022). Rhythmic stimulation improves corporeal performance, inducing body movements and stimulating muscle activation (Gonzalez-Hoelling et al., 2021). RAS improves motor control in rehabilitation and therapy by using physiological effects of rhythmic motor cueing (Gonzalez-Hoelling et al., 2021). It can be beneficial to improve step length on the affected side and cadence, improve static balance, and increase gait speed (Gonzalez-Hoelling et al., 2021). The RAS technique can be utilized with various populations who experience deficits with their gait parameters, including Parkinson's disease, strokes, traumatic brain injuries, multiple sclerosis, cerebral palsy, and orthopedic patients (Thaut & Hoemberg, 2016).

Conclusion

Movement and music-based programs have been found to be effective methods in addressing motor impairment, as seen in Lewis (1998), Schaefer and Overy (2015), and Mey (2014). Of Dalcroze's three music education methods, improvisation, solfège and Eurhythmics, it can be seen that Eurhythmics is closely related to movement and music. The reviewed studies demonstrated the connection between movement and music to address motor impediments. The main findings demonstrate a strong link between music and gross motor skills in improving motor function, on a cognitive level, and in relation to rhythm. Cognitively speaking there are multiple brain regions that are responsible for music processing and movement. Music processing engages cortical, subcortical, and cerebellar networks, including key motor areas such as the basal ganglia, premotor cortex, supplementary motor area, and cerebellum, which support movement synchronization and coordination (Schaefer & Overy, 2015). Rhythm is key in improving the synchronization of movements, regulating muscle activation, improving spatial control, motor planning, stability, and timing (Cibrian et al., 2020). In particular, isochronous (steady, beat-based) rhythms effectively elicit motor responses and facilitate entrainment, which is valuable in both a clinical (music therapy) and pedagogical (Dalcroze education) setting, such as in Neurologic Music Therapy. Relevant Neurologic Music Therapy literature may help bridge this gap as it includes the RAS technique which is used to facilitate the rehabilitation, development and maintenance of movements using physiological effects of auditory rhythm on

the motor system (Thaut & Hoemberg, 2016). Dalcroze Eurhythmics is relevant as it is a rhythmic, movement-based music training approach to teach musical elements and musical expression through movement to develop physical awareness (Berger & Shore, 2015). Both techniques focus on the musical element of rhythm in combination with movement.

Still, globally there is limited literature on certified music therapists using Dalcroze techniques to address gross motor difficulties. The Dalcroze method is a music and movement education program that has been applied in music therapy contexts to address motor goals, such as body and spatial awareness (Dalcroze Society of America, 2019). Dalcroze's approach consists of three main categories: Eurhythmics, solfège, and improvisation (Dalcroze Society of America, 2019). Dalcroze's main focus on Eurhythmics is described as the coordination of internal entrainment and the embodiment of musical elements to achieve a heightened awareness of both self and music (Berger & Shore, 2015).

The majority of the literature focuses on Dalcroze music education and how it is used in music education settings, not demonstrating the linkage between Dalcroze, music therapy and its clinical application. Through scanning the literature to find supporting evidence on music and movement, or Dalcroze techniques that address gross motor difficulties, fine motor skills, and/or motor planning, optimistically, a basis for the use of Dalcroze in a music therapy context was compiled. The next step was to continue to review the literature, collecting data from various sources until saturation was reached. In the next chapter, I describe the six core Dalcroze Eurhythmics exercises and how they can be conceptualized for use in music therapy to target gross motor difficulties.

Chapter 4. The Findings

Introduction

This chapter will respond to the subsidiary research question, "What unique strategies can Dalcroze Eurhythmics offer Certified Music Therapists who work with clients experiencing gross motor difficulties?" The findings will articulate an argument to support the integration of Dalcroze Eurhythmics by Certified Music Therapists working with individuals who are experiencing gross motor difficulties. The following sections will explicate the six types of Dalcroze Eurhythmics exercises: the follow exercise, the quick reaction exercise, the canon exercise, the interrupted canon exercise, the continuous canon exercise, and the replacement exercise. The purpose and potential of the Dalcroze Eurhythmics exercise types in the realms of music education and music therapy will be explained and linked to a sample exercise in order to explain its relevance to Certified Music Therapists. As well, the Dalcroze Eurhythmics exercise types will be described in relation to educational and therapeutic purposes.

Dalcroze Eurhythmics: Follow Exercises

Brief Description

Follow exercises are one of six types of Dalcroze Eurhythmics exercises. In a music classroom context, students are instructed to follow the music and respond musically or through movement to the constant changes in tempo, accents, intensity, phrasing, and articulation (Comeau, 1995). In the exercise, the teacher can play the music on the piano, using their voice, or by using a pitched or unpitched percussion instrument. The students can follow the exercise by responding through movement, using their voice, or playing pitched or unpitched percussion instruments.

Follow Exercises for Music Education Purposes

In Dalcroze music education, the goal of follow exercises is for students to react instinctively to music using natural movements, such as walking or gesturing (Oney, 2017). According to Oney (2017), voice teachers use Dalcroze Eurhythmics follow exercises to free tension in the singer's body, increase spatial awareness, and encourage expressive, meaningful responses to aural stimuli. Students must physically realize a specific musical rhythm and respond instinctively to the musical changes, thus developing a real-time relationship with what is occurring in the music (Daley, 2013). Of the six types of Dalcroze Eurhythmic exercises, the

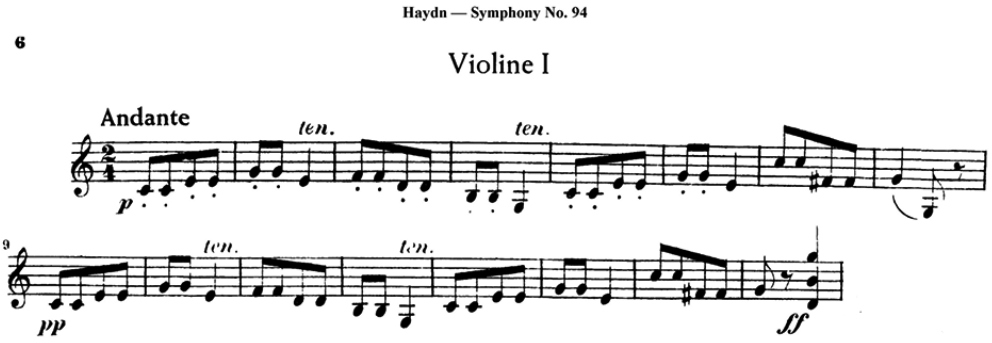
follow exercise is the most basic and foundational for developing musicality. The purpose of the follow exercises is to guide students' attention to any neglected facet of their music making and to focus on one element at a time (Espejo Araneda, 2019). In these exercises, students mimic, through movement, the variations that happen in the music, which requires attentive listening and adaptability from the students (Espejo Araneda, 2019). Benefits of follow exercises include enhanced critical listening and quick-thinking skills (Oney, 2017).

Sample Exercise

Dalcroze Eurhythmics follow the ball exercise focuses on understanding and synchronizing to phrase structures, and it encourages students to explore space, time, and energy. In this exercise, students are asked to explore the amount of energy needed to roll a ball on the floor so it can travel to a specific space in the room at the correct time in the musical phrase. The students sit on the floor in pairs, facing one another, while the teacher plays a song. In this example from Anderson (2012), the teacher is playing the theme of the second movement of the Surprise Symphony by Haydn. An excerpt of the Surprise Symphony by Haydn is included in Figure 1. On the first beat of each two-bar motif, one student rolls the ball on the floor to their partner with just enough energy for the ball to make it to their partner's hands on the last beat of the two-bar motif. At the start of the next two-bar motif, the other student rolls the ball back to their partner, following the same technique. This exercise continues until the end of the theme in the song. A variation of this exercise might ask the students to stand up, face their partner, and toss the ball to each other. Each partner can work on their coordination, and ability to catch.

Figure 1

Surprise Symphony by Haydn



Note. Violin I theme of the Surprise Symphony by Haydn (Haydn, 1795/1855)

Follow Exercises for Therapeutic Purposes

The Dalcroze Eurhythmics follow the ball exercise can also be utilized to support extra-musical goals; and this specific exercise might be most appropriately used with children. It can, specifically, be used by Certified Music Therapists to address gross motor coordination with a specific focus on the ability to catch and throw a ball. Birkenshaw-Fleming (1989) highlights the fact that children with motor coordination challenges can experience difficulties with bouncing, catching, and throwing balls. However, rhythm and music can aid in developing these skills. Balls of assorted sizes and weights can be useful props in movement activities. It is important to remember, though, that for young children with coordination difficulties, small balls can be exceedingly difficult to catch and subsequently hold. Therefore, larger balls like beach balls are best for young children (Birkenshaw-Fleming, 1989).

In this Dalcroze Eurhythmics exercise, the Certified Music Therapist plays a recorded music selection, such as the second movement of the Surprise Symphony by Haydn. The children are asked to sit on the floor facing their partners and to roll the ball to each other using the tempo and phrasing of the music to organize their movements. In order to have the children become acquainted with the task, the music therapist plays the pre-recorded music in the background and assists the children with the movements required to roll the ball. This demonstrated movement by the music therapist helps the children to begin to learn the motor skill for the activity. After the children are comfortable with the action of rolling the ball, the music therapist can provide a verbal and visual cue to signal to the children that it is time to roll the ball to their partner (i.e., on the first beat of each two-bar motif). This exercise can be adapted to require the children to either overhand or underhand throw and catch the ball, instead of rolling it to their partner, which works on their perceptual motor coordination.

The first goal is to improve the client's ability to control the speed, distance, and direction of the ball. The first progress indicator is that the client can use either one or two hands to push the ball, so it rolls. However, the direction and speed are inaccurate, and the ball cannot reach their partner. The second progress indicator is the client can use their hands to push the ball, so it rolls in the right direction to their partner. However, their movement is not aligned with the phrasing of the rhythmic motif. The last progress indicator is that the client can use their hands to roll the ball on the first beat of the motif with a consistent, rhythmic force that enables successful rolling of the ball to their partner by the end of the two-bar motif. The second goal is

to strengthen the client's ability to have well-controlled, fluid, and coordinated movements that ensure the ball moves along the floor without bouncing. The first progress indicator is that the client can coordinate their movements and push the ball along the floor, but their force causes the ball to bounce. The second progress indicator is that the client can coordinate their movements and push the ball along the floor, and it moves in a straight line with very few bounces. The last progress indicator is that the client can coordinate their movements to seamlessly roll the ball along the floor without it bouncing. The third goal is to improve the client's ability to maintain a stable postural position while rolling the ball along the floor. The first progress indicator is that the client can shift their weight forward when pushing the ball across the floor. However, they lose their sense of balance and fall forward or to the side. The second progress indicator is that the client can shift their weight forward when pushing the ball across the floor, but they begin to lose their balance yet quickly regain it by adjusting their body and engaging their core. The third progress indicator is that the client can shift their weight forward when pushing the ball across the floor, maintain their balance and a stable postural position, and smoothly execute the transition of movements by shifting their weight. The Certified Music Therapist in this exercise monitors the control, range of motion and fluidity, postural stability, and coordination of the children's movements, and the physiotherapist is there to support the child if they fall when losing their balance.

Dalcroze Eurhythmics: Quick Reaction Exercises

Brief Description

The quick reaction exercises form the second of the six types of Dalcroze Eurhythmics exercises. In a music classroom context, students are instructed to listen attentively to the music that is being played by the teacher on the piano, a pitched or unpitched percussion instrument, and then to respond to the musical cues, such as changes in rhythm, dynamics, articulations, melodies, texture, form, and harmonies through movement (Comeau, 1995). These exercises are called quick reaction exercises because the students must react to the musical cues as quickly as possible.

Quick Reaction Exercises for Music Education Purposes

In Dalcroze music education, the goal of quick reaction exercises is to support students to develop motor control and facilitate coordination of their ear (auditory), mind (cognitive), and body (motor). This important linkage between kinesthetic exercises and music concepts supports

the development of a physical sensation that, in turn, helps to clarify the relationship between musical elements, such as tempo, duration, pitch, rhythm, and tonality. This important connection also helps students to cultivate a working knowledge of, and vocabulary related to these key musical concepts (Johnson, 1993). According to Anderson (2012), many Eurhythmic exercises commence with students internalizing rhythm prior to exploring it through interactive movement, which may appear as mirroring a teacher's movement during songs, or music/movement responses being influenced by a teacher. Common quick reaction exercises involve students walking, running, and skipping to musical accompaniment (Crosby, 2008).

Sample Exercise

The Dalcroze Eurhythmics quick reaction storytelling exercise involves the teacher improvising the music while telling a story, and the students mimicking the movements being mentioned in the story or song. The students are asked to listen attentively to the story and music, waiting for the next mention of a movement being described in the story. Once a new movement is presented, the students are to mirror the movement until the next movement is told in the story. For example, the story could read as follows:

Once upon a time, there was a knight who lived in a castle surrounded by fields of flowers. Every morning, his horse would ***jump*** *over the fence to greet him and guide him outside for a* ***walk*** *in the field. One day his horse was spooked by a loud crack of thunder, which caused his horse to* ***run*** *away. The knight* ***walked*** *back to the castle all by himself and longed for the day for his horse to return.*

In this story, the movement cues are to jump, walk, run, and to walk again. When the students hear each of these words described in the story, they need to quickly react and demonstrate the movement until the next movement is mentioned. Musically, the students are learning to move to the music by following the pulse or beat of the music, which is also known as rhythmic entrainment. To be noted, the music is being played alongside the narrated story, utilizing meters that support the movements being described in the story.

Quick Reaction Exercises for Therapeutic Purposes

The Dalcroze Eurhythmics quick reaction storytelling exercise can be used to address transitional motor goals related to the need to transition between specific movements; and this exercise might also be best utilized with children. Transitional movement is when an individual shifts or moves from one movement to another (Kaskavage, 2022). Being able to transition from

one movement to another requires balance, coordination, and body awareness. Eurhythmic exercises can improve posture, gait stability, and balance by combining rhythm with full-body movements.

The storytelling exercise can be used to address transitions between any difficult motor skills. For example, the individual is required to transition from jumping (a vertical movement) to walking (a forward movement). This requires multiple transitions that include regaining balance after jumping, then standing still, and finally initiating lower limb movement to begin to walk forward. The next motor skill to be practiced in the exercise is running. The individual must be able to increase their gait speed and lower limb movement to be able to transition from walking to running. To conclude, the individual must be able to demonstrate muscular control, decrease their movement speed, and then slow their lower limb speed to be able to return to walking again.

The Certified Music Therapist in this exercise monitors fluidity, balance, control, and coordination during the transition between movements. The first goal is to work on the specific transition between jumping and walking. The related progress indicators are that the client can attempt to initiate the movement after it has been described in the story, then can successfully initiate the movement, and finally can immediately initiate the movement with minimal to no difficulty. The second goal is to work only on the transition from walking to running. The related progress indicators are that the client can slowly begin the locomotor actions for the next action in the story (i.e., from walking to running), then can initiate the next movement with a reduced transition delay between movements, and lastly can initiate the next movement with no transition-related delay. The third goal is to improve the transition from running to walking. The related progress indicators are that the client receives assistance from a physiotherapist working with a Certified Music Therapist to support balance when attempting to transition from one movement to another; the client may not be well coordinated during the transition. The client may then begin to transition between movements with a bit of shakiness, but a bit more control and coordination in their movements. Finally, the client can independently transition between movements with balance, control, and coordination. The last goal involves work on the sequence as a whole, having the client work on continuous transitions between movements. The overall motor goals for each of the transitions are that the client can quickly initiate each movement after it is mentioned in the story; that the client can transition from one movement to another (i.e.,

from jumping to walking) without difficulty; and that the client can execute each movement in a controlled, balanced, and coordinated manner without support from a physiotherapist.

Dalcroze Eurhythmics: Canon Exercises

Brief Description

The canon exercises are the third type of Dalcroze Eurhythmics exercises. In a music classroom context, the teacher plays a musical motif on a melodic instrument (typically on the piano), and the students are instructed to respond to the teacher's motif through imitation via movement or playing a musical instrument (Mead, 1996). As such, canon exercises involve the overlapping of more than one musical idea at once.

Canon Exercises for Music Education Purposes

In Dalcroze music education, canon exercises teach increased musicality, musicianship, and musical independence (Espejo Araneda, 2019). Responding to overlapping melodies supports the formulation of critical listening, aural discrimination, and memory skills alongside multitasking abilities related to thinking ahead (Oney, 2017). According to Oney (2017), canon exercises develop singers' abilities to cope with changing musical situations and to be able to manage any unexpected occurrences during a performance. Canon exercises contribute to students' ability to focus, their interest in participating, and awareness of the present moment while honing their listening skills (Oney, 2017). Other benefits include the development of fine motor skills within the body; heightened awareness; and improved concentration, and the brain-body connection (Espejo Araneda, 2019).

Sample Exercise

The Dalcroze Eurhythmics canon obstacle exercise can adapt the use of the song "Let us Run" from Birkenshaw-Fleming (1989)[1] and involves the teacher playing a four-bar motif, with the student responding by imitating the four-bar motif the teacher just played. The students and the teacher play at the same time; when the teacher is playing one four-bar motif, the students are listening and improvising, waiting for their turn to respond, and when the students are responding, the teacher is improvising waiting for their turn to play the next four-bar motif. The layering of the song in a canon-like fashion continues until the song is complete, and the students are the last to provide their four-bar response to the teacher's motif. In the song, there are different action words, such as "let us walk," or "let us crawl" around the room or circle, which

[1] The song adaptation of "Let us Run" from Birkenshaw-Fleming (1989) was created by the researcher in their music therapy work.

can be interchanged with the lyrics “let us run.” Variations of the canon can be played by having the students wait for the entire song to be played through (eight bars) before responding, or the response time can be shortened by having the student imitate the teacher’s motif after two bars.

Canon Exercises for Therapeutic Purpose

The Dalcroze Eurhythmics canon obstacle exercise adaptation of the song “Let us Run” from Birkenshaw-Fleming (1989) can be used to address gait training goals in clients with specific gait difficulties. As the Certified Music Therapist is playing the four-bar rhythmic motif, the client is walking towards the desired musical instrument located in a specific spot in the room, while navigating obstacles located on various spots on the floor. By the end of the four-bar motif, the client will have reached the musical instrument and is able to respond to the motif on their instrument. While the client is responding, the music therapist is improvising to create a layered canon effect. Once the client has finished playing, the Certified Music Therapist begins playing the next four-bar motif, and while the client walks to the next musical instrument in the room, they sing an improvised melody. This movement and response pattern continues until the end of the song.

Mejía (2024) discusses the effectiveness of gait training with obstacles for clients with gait training difficulties. In the excerpt, Mejía (2024) explains how the clients had to navigate obstacles of varying heights, widths, and distances between them and successfully navigate the obstacles while walking. The goals were to improve gait freezing by maintaining a steady gait pattern, improve gait stability, proprioception, and walking speed, as well as increase the client’s awareness of temporal and spatial balance during gait biomechanics (Mejía, 2024). Overall, the obstacle-crossing intervention provides an opportunity to practice and improve specific gross motor skills related to successfully navigating the obstacles, which improves client’s mobility, balance, and coordination difficulties (Mejía, 2024).

In a music therapy setting, a Certified Music Therapist playing music with a strong, steady rhythmic motif can support a client navigating obstacles and working on improving their gait training goals. The musical rhythm serves as an activation signal. It stimulates the client’s motor system to synchronize with the musical rhythm (Wu et al., 2022). This process of rhythmic entrainment helps to synchronize the client’s walking movement with the musical rhythm. This, in turn, intervenes in the client’s gait pattern and allows them to successfully maintain a steady gait pattern. It also helps to reduce gait freezing and supports clients as they

navigate the obstacles (Wu et al., 2022). The Dalcroze Eurhythmics canon exercise structure allows time for the client to rhythmically entrain to the music before having to musically respond.

The music therapy space would be set up with obstacles around the room. The music therapist remains stationary and sits in front of an instrument in one location in the room. The client is accompanied by a certified physiotherapist or occupational therapist around the room during the exercise. In addition to the obstacles in the room, there would be musical instruments set up throughout the room for the client to aim to walk to by the end of the musical motif. The Certified Music Therapist would play the excerpt "Let us Run" from Birkenshaw-Fleming (1989), and while they are playing, the client would be rhythmically entraining their steps to the music, navigating obstacles, and walking to the first musical instrument. Once the client reaches the instrument, the hope would be either the music therapist would be just ending playing the motif or have just finished playing the excerpt. The client would then respond, in canon, repeating the excerpt they just heard. After the client finishes playing their response, the music therapist will play the excerpt again, as the client navigates obstacles and walks to the next musical instrument. Then the client would echo the excerpt again as soon as the music therapist stops playing. The canon exercise would continue until the client navigated all of the obstacles. The song "Let us Run" is an eight-bar excerpt, however, the music therapist could shorten or lengthen the song by either playing a four-bar motif to shorten the amount of time needed for the client to reach the first musical instrument, or repeating the song to lengthen it to allow the client more time to navigate the obstacles successfully. Different action words can be used in the song, however, for this scenario, it would be best to keep the action word as walking, as this is the goal for the client. The tempo of the song can be catered to the gait speed of the client, and as the client develops more confidence and security in their gait speed, the song can be played at faster tempos.

The Certified Music Therapist and certified physiotherapist or occupational therapist will monitor the client's balance, coordination, mobility, gait speed, and ability to navigate obstacles. The first goal is the client can walk to the musical instruments located in various parts of the room. The progress indicators would be for the client to be able to walk with assistance from the physiotherapist in order to maintain their balance and fluidity in walking. The next progress indicator is that the client can walk with minimal assistance from the physiotherapist and has a

stronger sense of balance and fluidity in their walking. The last progress indicator is the client can walk with little to no assistance from the physiotherapist and is able to maintain their balance and fluidity in walking. The second goal is the client can step over an object. The first progress indicator would be the client can successfully step over an object that is 1cm in height while maintaining balance. The next indicator would be the client can successfully step over an object that is 4cm in height while maintaining balance. Next, the progress indicator would be the client can successfully step over an object that is 8cm in height while maintaining balance. The third goal would be for the client can walk around an object. The progress indicator would be the client can successfully step around an object that is 2cm in width. The next indicator would be the client can successfully step around an object that is 3cm in width. Next, the progress indicator would be the client can successfully step around an object that is 4cm in width. The fourth goal would be the client can continuously walk without any gait freezing when encountering an obstacle. The progress indicator would be that the client can either step over or around the obstacle with a pause in their gait, requiring assistance in maintaining balance, and verbal cues to coordinate the motion of stepping over or around the object. The next indicator would be the client can either step over or around the obstacle with only a slight pause in their gait, requiring minimal assistance in maintaining balance, and a couple verbal cues to coordinate the motion of stepping over or around the object. Next, the progress indicator would be that the client can either step over or around the obstacle with no pause in their gait, no assistance in maintaining balance, and no verbal cues to coordinate the motion of stepping over or around the object. Lastly, the indicator would be the client can successfully navigate an increased number of difficult obstacles with varying heights and widths, with a steady gait speed, a strong sense of balance, and fluid coordination of the motion of stepping over or around the objects.

Dalcroze Eurhythmics: Interrupted Canon Exercise

Brief Description

The interrupted canon exercises are the fourth type of Dalcroze Eurhythmics exercises. In a music classroom context, the teacher produces a rhythmic motif using any type of drum, and using an instrument the students respond immediately, mid-phrase, creating an echo effect before resuming the cycle (Comeau, 1995). Interrupted canon exercises involve the students echoing a pattern performed by the teacher, whether it be on an instrument, in movement, with a gesture, or with the voice (Espejo Araneda, 2019).

Interrupted Canon Exercises for Music Education Purposes

Interrupted canons are central in Dalcroze music education because they highlight the principle of listening and learning as active experiences (Espejo Araneda, 2019). Movement is the means for learning, learning is an active experience, and the relationship of time, space, and energy are the way to learn music concepts (Espejo Araneda, 2019). Only through active experiences involving rhythm through the senses, can music be internalized and made into a mental experience (Espejo Araneda, 2019).

Sample Exercise

The Dalcroze Eurhythmics interrupted canon drumming exercise adapts the use of "Tick Tock" from Birkenshaw-Fleming (1989)[2] and involves the teacher tapping the four-measure rhythmic motif on the Djembe, with the student immediately responding by tapping back the rhythmic motif to create an echo effect. The teacher then proceeds to play the next four measures, with the student interrupting and responding with the iteration of the first four measures. Then, the teacher interrupts and taps the last four measures, and finally the student interrupts responding with the echo of the last four measures. The teacher can improvise rhythmically and increase or decrease the length of the rhythmic motif for the student to echo. The interrupted canon produces a layering of rhythmic motifs, and its purpose is to improve student's ability to multitask by being able to play what was previously heard while currently hearing the new motif.

Interrupted Canon Exercises for Therapeutic Purposes

The Dalcroze Eurhythmics interrupted canon drumming exercise adaptation of "Tick Tock" from Birkenshaw-Fleming (1989) can be used to address upper limb motor rehabilitation. According to Grau-Sánchez et al. (2020), motor deficits of the upper extremity are known to manifest as impaired reaching, grasping, and manipulation abilities, reduced spatiotemporal coordination, spasticity, and paresis (mild to moderate muscular weakness or partial paralysis, caused by nerve damage). Playing music instruments is an effective music-based approach to treat paresis of the upper extremity (Grau-Sánchez et al., 2020). Playing music instruments enhances motor function by providing a context for motor skill development, and the client is actively improving motor functioning through movement to generate music (Grau-Sánchez et al.,

[2] The song adaptation of "Tick Tock" from Birkenshaw-Fleming (1989) was created by the researcher in their music therapy work.

2020). The act of playing an instrument improves motor deficits as it involves highly skilled movements (Grau-Sánchez et al., 2020).

The interrupted canon drumming exercise can be used to support upper limb rehabilitation goals. In the exercise, both the client and the Certified Music Therapist play a Djembe and tap the song "Tick Tock" from Birkenshaw-Fleming (1989). The music therapist begins by tapping the four-measure rhythmic motif. Then the client is asked to immediately respond by tapping back the rhythmic motif. This carries on with the music therapist tapping the motif, and the client echoing the motif until the end of the exercise. To adapt the exercise to support other motor goals of the client, the music therapist can increase or decrease the length of the rhythmic motif, or change the tempo, and increase the complexity as the client makes progress towards achieving their motor goals.

The Certified Music Therapist monitors the client's motor functioning, strength, muscle activation, range of motion, quality of movement and coordination. The "Tick Tock" song is rhythmic in nature, and according to Grau-Sánchez et al. (2020), rhythm- and music-based therapy yields greater perception of recovery, improved balance, grip strength, and working memory. Positive outcomes of this approach result in improvements in motor function, including increased muscle strength in wrist extensions and shoulder abductions, range of motion in the joints of the upper limb, and selective movement (Grau-Sánchez et al., 2020). Additional outcomes of this approach include changes in movement quality, such as more fluidity, smoothness, speed, symmetry of movements, and a reduction in compensatory movements (Grau-Sánchez et al., 2020).

The first goal is that the client can tap their fingers on the Djembe. The initial progress indicator is that the client can tap their hand on the drum. The next indicator is that the client can tap their hand on the drum, but not in-sync with the rhythm. Next, the progress indicator is that the client can tap their hand on the drum and be more consistent with the rhythmic pattern. However, they may still be offbeat on occasion. The last indicator is that the client can tap their hand on the drum in-sync with the rhythm. Several subsequent progress indicators could include improved range of motion while tapping the drum. This might involve the clients raising their hand to varying heights while monitoring their spasticity during the movement. The second goal is that the clients can reach and tap their hand on various parts of the Djembe. The first progress indicator is that the client can tap the drum in the center every time, focusing on accuracy,

quality of movement, and coordination. Next, the progress indicator is that the client can reach and tap just outside the center of the drum at the farthest point. Lastly, the indicator is that the clients can reach and tap the outer edges of the drum. A related progress indicator is that the client can reach and tap various parts of the drum in a seamless fluid motion. The third goal is that the client can grasp a mallet and strike the Djembe with the mallet. The first progress indicator is that the client can pick up and wrap their fingers around the mallet. The next indicator is that the client can hold the mallet and hit the mallet against the drum with a little bit of spasticity in their movement. The final indicator is that the client can strike the drum with a controlled, fluid motion, and no spasticity.

Dalcroze Eurhythmics: Continuous Canon Exercises

Brief Description

The continuous canon exercises are the fifth type of Dalcroze Eurhythmic exercises. In a music classroom context, the teacher plays on the piano or a pitched percussion instrument a melodic motif and continues playing new motifs, while the students repeat the new motifs on a pitched percussion instrument, creating a seamless, layered melodic motif (Comeau, 1995). Alternatively, this exercise can be completed by the teacher and the students using the voice to sing the melodic motifs.

Continuous Canon Exercises for Music Education Purposes

In Dalcroze music education, continuous canon exercises are used to improve multi-tasking skills, since the students must be able to perform what they have already heard while the music continues to play (Daley, 2013). According to Daley (2013), in the choral context, continuous canon exercises help choristers develop an awareness of the entire choral score, and to aid in their awareness, the conductor has the choristers step the music in canon. By having the choristers' step-in canon this relates to Dalcroze's claim that kinesthetic learning is a foundational element in both musicianship training and in musical enjoyment because often teachers have the students remain in one spot, but allowing one to move around the room and demonstrate motion, expression, and energy in their vocal production they can better understand and truly express their musical understanding (Daley, 2013).

Sample Exercise

The Dalcroze Eurhythmics continuous canon exercise adapts the use of "Hey, Hey Look at me" from Birkenshaw-Fleming (1989)[3]. The teacher sings the motif while performing the action, for example, clapping while singing about clapping. Once the teacher finishes the motif, the student repeats the motif while performing the action, and during this time the teacher is only performing the action and humming the melody. Next, the teacher sings and performs a new motif with a new action, while the students are only performing the action and humming the melody. This creates a continuous canon, without making it too challenging to multitask for the students. The canon continues until the teacher goes through all of their desired actions and finishes with the students humming the melody and performing the action on their own to end the canon. Throughout the entire exercise, the melody stays the same, however, is layered in a canon-like fashion.

Continuous Canon Exercises for Therapeutic Purposes

In the exercise, the Certified Music Therapist would be singing about different actions for the client to echo in the continuous canon structure. For example, if the music therapist begins by singing the motif while clapping, the client would wait until the music therapist finishes the motif and then would sing the motif while clapping. During this time, the music therapist would only be clapping and humming the melody of the motif, therefore, once the client finishes singing, the music therapist can begin the next motif and action. For instance, the next action could be the music therapist walking in a straight line while singing, this would be the action the client would have to mirror next. The echoing of music and mirroring of actions would continue until the end of the song. The songs and actions can be tailored towards the client's motor goals and their physical capabilities. A few techniques to utilize in this exercise would be starting with a slower tempo to allow the client to learn to walk slowly by practicing stepping and standing still, stepping, and standing still to improve their sense of equilibrium (Kwak, 2007). According to Kwak (2007), walking backwards is helpful for improving balance equilibrium, or exercising with inclining and declining slopes.

The Dalcroze continuous canon exercise adaptation of "Hey, Hey Look at Me" from Birkenshaw-Fleming (1989) can be used to address gait training goals in clients with gait training difficulties. The first goal is that the client can maintain their balance and kinematic

[3] The song adaptation of "Hey, Hey Look at me" from Birkenshaw-Fleming (1989) was created by the researcher in their music therapy work.

stability. The client addresses this goal by slowly working through the motion of stepping and standing and stepping and standing. The first progress indicator is the client can transition from stepping and standing still with the continuous assistance of their physiotherapist, although they experience some difficulty maintaining equilibrium. The second progress indicator is that the client can transition from stepping and standing still with reduced assistance from their physiotherapist, they demonstrate stronger postural and movement control, however, they still demonstrate difficulty maintaining equilibrium. The third progress indicator is the client can transition from stepping and standing still with minimal assistance from their physiotherapist, and they experience minor difficulty maintaining equilibrium. The second goal is that the client can demonstrate joint range of motion. The initial progress indicator is the client can move their joint to the slightest angled degree while walking, as measured by the physiotherapist using a goniometer (an instrument that measures an angle to a precise angular position). The next progress indicator is the client can move their joint to a slightly higher degree of an angle while walking. The last progress indicator is the client can demonstrate flexible joint mobility while walking. The third goal is the client can demonstrate improved gait patterns, such as increased knee and hip extension while walking, reduced compensatory movements, and velocity. The first progress indicator is that the client can walk forwards, with lots of compensatory movements, short stride lengths, and an inconsistent speed. Next, the client can walk forwards, with reduced compensatory movements, longer stride lengths, and a slow, steady speed. The final progress indicator is the client can walk forwards in a semi-straight direction, with little to no compensatory movements, close to average stride lengths, and a comfortable, steady speed.

Dalcroze Eurhythmics: Replacement Exercises

Brief Description

Replacement exercises are the last type of Dalcroze Eurhythmic exercise. In a music classroom context, the teacher produces a melodic motif on the piano or a pitched percussion instrument, and a pre-determined movement or pattern is replaced with a rest in the music, and a pause in their movement (Comeau, 1995). The students in this exercise respond with movement, although depending on the activity goals, the students can respond on a pitched or unpitched percussion instrument. Alternatively, this exercise can be completed by the teacher and the students using the voice to sing the motifs.

Replacement Exercises for Music Education Purposes

In Dalcroze music education, the purpose of replacement exercises is to assist in the shift between internal and external tempos, to explore the difference between feeling anacrusis and crusis beats, or to discern emotional states from body gestures and attitudes (Daley, 2013). Replacement exercises involving the whole body allow one to explore phrasing through ball-pass activities, which contribute to understanding mixed meters, and rope-pull games, which aid in releasing tension (Daley, 2013). The Dalcroze approach prioritizes kinesthetic experience prior to studying music scores, thus preventing cognitive interference and negative self-talk when learning and understanding the music (Daley, 2013).

Sample Exercise

The Dalcroze Eurhythmics replacement exercise adaptation of "Move with me" from Birkenshaw-Fleming (1989)[4] consists of the teacher singing the song "Move with me", while the students walk around the space, following the directions in the song and stopping to freeze like a statue when indicated. This is a great action song to incorporate various gross motor movements, such as hopping, running, or skipping around the room. In the song, the motif is played over two measures with a ritardando on a quarter note on the third beat of the measure. In the replacement exercise, there are a couple of variations. The quarter note can be replaced with a half note, causing the students to hold the statue pose for longer, or the exercise can begin with the students holding a statue pose for a beat or two before beginning to move around the room. Another variation would be to add rests in the middle of the motif, having the students stop what they are doing and wait until the rhythmic motif begins again. In the Dalcroze Eurhythmics replacement exercise, notes can be replaced with rests, or by notes with longer note values.

Replacement Exercises for Therapeutic Purposes

The Dalcroze Eurythmics replacement exercise can be used to support the improvement of balance in clients who, for example, have had a stroke. In the exercise, the Certified Music Therapist would sing "Move with me" from Birkenshaw-Fleming (1989), while the client is seated in a chair between two parallel walking bars. As the music therapist sings the song, the client is assisted by a certified physiotherapist to move from a seated position to a standing position. When the music therapist reaches the end of the song and says to freeze like a statue, the client is asked to hold onto the parallel bars for support and try to stand still, while

[4] The song adaptation of "Move with me" from Birkenshaw-Fleming (1989) was created by the researcher in their music therapy work.

maintaining their balance. After a brief period of time, the music therapist sings the song again. This time, the client is asked to work on returning to a seated position. At the end of the song, the client is prompted to freeze in their seated position, ensuring they maintain their postural balance until the song starts again. According to Gonzalez-Hoelling et al. (2021), singing the song between 40 to 60 bpm is an ideal tempo to help clients who had a stroke rhythmically entrain their movements to the music and be able to maintain a standing balance and a seated postural balance without assistive devices. The purpose of the exercise is for the client to follow the movement and rhythmic cues provided by the music therapist, which are to freeze like a statue, and then to begin moving again. As the client gains strength in their balance, with the aid of the physiotherapist, the music therapist can increase the tempo of the song, having the client transition from a standing to a seated position or vice versa, at a faster pace. The music therapist can also change the duration of the time the client has to hold a pose, by increasing or decreasing the length of time, depending upon the client's stamina. Once the client no longer requires parallel walking bars to stand, the client can work on walking around the room with assistive devices, which targets gait training, and freeze in a pose to continue working on their balance. As in Gonzalez-Hoelling et al. (2021), the clients who had a stroke practiced sitting and standing balance from sit-to-stand motion with the assistance of parallel walking bars and then transitioned to dynamic standing balance and gait training with assistive devices once their physical function improved.

In the exercise, the Certified Music Therapist and physiotherapist would be monitoring the client's sitting and standing balance, and eventually their dynamic standing balance. The first goal is that the client can transition from sitting to standing while maintaining their balance. The progress indicator is that the client can transition from sitting to standing with assistance from the physiotherapist and the parallel walking bars. The next indicator is that the client can transition from sitting to standing with minimal assistance from the physiotherapist and the parallel walking bars. The last indicator is that the client can transition from sitting to standing with no assistance from the physiotherapist or the parallel walking bars. The second goal is that the client can maintain postural balance when seated and static balance when standing. The first progress indicator is that the client can maintain their postural balance for 15 seconds with assistance from the physiotherapist and can maintain static balance for 15 seconds with assistance from the physiotherapist and the parallel walking bars. The second indicator is that the

client can maintain their postural balance for 30-45 seconds with minimal assistance from the physiotherapist and can maintain static balance for 30-45 seconds with minimal assistance from the physiotherapist and the parallel walking bars. The last indicator is that the client can maintain their postural balance for 1 minute without assistance from the physiotherapist and can maintain static balance for 1 minute without assistance from the physiotherapist or the parallel walking bars. The third goal is that the client can walk with assistive devices and can maintain their dynamic standing balance. The first progress indicator is that the client can walk with assistance from the physiotherapist and their walking device, with difficulty maintaining their dynamic standing balance. The next progress indicator is that the client can walk with minimal assistance from the physiotherapist and their walking device, with some difficulty maintaining their dynamic standing balance. The third progress indicator is that the client can walk with next to no assistance from the physiotherapist and their walking device and can maintain their dynamic walking balance. The final progress indicator is that the client can walk with no assistance from the physiotherapist, only the support of their walking device, with no difficulty maintaining their dynamic standing balance.

Conclusion

The Dalcroze Eurhythmics technique includes six core exercises: follow, quick reaction, canon, interrupted canon, continuous canon, and replacement. These exercises can be used to address a range of gross motor difficulties, including spatial awareness, balance, motor control, range of motion and fluidity, postural stability, coordination, transitional movements, gait stability and freezing, steady gait patterns, proprioception, cadence, gait velocity, and upper limb motor deficits. Example activities include storytelling with movement, navigating obstacles, djembe drumming, transitioning from sitting to standing, rolling a ball, and clapping and walking to music. Although the Dalcroze method cannot be found in books, as there are no specific song materials, lesson plans, or exercises that define this approach, the researcher was able to develop their own adapted sample exercises based on their understanding of the approach (Johnson, 1993).

Chapter 5. Discussion

Revisiting the Research Question

This philosophical inquiry analyzed Dalcroze music education and how its techniques and exercises can be applicable and beneficial in the music therapy setting, in particular for addressing gross motor difficulties. The primary research question was: "Why is Dalcroze Eurhythmics an ideal set of exercises for Certified Music Therapists to use when working with clients who experience gross motor difficulties?" Although there is very little music therapy literature on Dalcroze music therapy itself, connections and parallels were drawn between Dalcroze Eurhythmics exercises and music therapy to support gross motor goals. There are six types of Dalcroze Eurhythmics exercises: the follow exercise, the quick reaction exercise, the canon exercise, the interrupted canon exercise, the continuous canon exercise, and the replacement exercise that can be used to integrate movement and music to address motor goals. As demonstrated in chapter 4, all six types of Dalcroze Eurhythmics exercises can be conceptualized in a way that would allow a certified music therapist to address common gross motor difficulty goals.

Potential Implications for Music Therapy Practice

Music therapists can reflect on how the integration of movement into their sessions may significantly influence the desired outcomes and/or responses from the client. The collaboration between a Certified Dalcroze Educator and Certified Music Therapist to create a Dalcroze-informed music therapy program could enhance both music education and music therapy, by adding greater depth, purpose, and clarity to how the Dalcroze approach is applied. A shared program with clinical goals, applications, and sample exercises could serve as a helpful resource for practitioners. Given that Eurhythmics focuses on movement, it would be beneficial for a Certified Music Therapist using Dalcroze techniques to collaborate with a physiotherapist to develop a treatment program addressing motor goals. The treatment program would define the role of the physiotherapist as supporting the client with balance, gait training, postural stability, and motor coordination, while the music therapist provides and adapts the music to support rhythmic entrainment and respond to the client's needs through improvisation. Together, the physiotherapist and music therapist would continuously assess and adapt the session in real time, while contributing jointly to session documentation and treatment planning. Additional insight from a Certified Dalcroze Educator could further enrich this process by offering ideas for

Dalcroze Eurhythmics games, activities, and experiential exercises that can be integrated into music therapy sessions.

During the literature review process, alternative movement therapies incorporating Dalcroze techniques were identified. For example, Takahashi et al. (2019) examined dance/movement therapy approaches, while Nijs (2017) explored the connection between music and technology to address motor goals. From the researcher's interpretation, these techniques could be adapted for use within a Dalcroze-informed music therapy and movement approach to support individuals with movement difficulties across various populations. Takahashi et al. (2019) discovered that dance/movement therapy can be an effective intervention for individuals with autism spectrum disorder, while also supporting the development of physical strength. Interventions included rhythmic exercises, expressive movement, synchronization to music, and imitation (mirroring) (Takahashi et al., 2019). Since rhythmic movement is a core component of Dalcroze music education, music therapists could adapt these techniques to incorporate expressive movement, synchronization, and imitation within a Dalcroze-informed therapeutic context. Nijs (2017) studied the effects of a music paint machine, which is an interactive technology for musicians to create digital paintings through musical performance and movement on pressure-sensitive mats. The system monitors and analyzes the musician's sound and movements, translating these into visual outputs. This approach embodies music through the integration of body movement and musical expression, providing a multimodal experience in which both converge into a shared visual stimulus (i.e., digital painting). Nijs (2017) stated the music paint machine parallels the Dalcroze method, particularly in its use of physical interactions to enable music to be more visible and concrete. Furthermore, integrating the music paint machine with Dalcroze techniques could offer an engaging, multisensory environment to address movement difficulties in a music therapy setting. The abovementioned examples highlight the potential value of Dalcroze as a complementary approach in music therapy, specifically when working with individuals experiencing gross motor difficulties. Additional creative arts therapies, such as art therapy, play therapy, and drama therapy, in combination with Dalcroze techniques or Dalcroze music therapy may be beneficial. Further research could examine how elements of Dalcroze Eurhythmics, improvisation, or solfège contribute to motor development, but also to broader clinical goals.

Music therapists may encounter several challenges when implanting Dalcroze-based approaches in their music therapy practice. One primary challenge may be developing a sufficient understanding of the technique to confidently create, adapt, and implement Dalcroze Eurhythmics exercises within a therapeutic context. Tailoring Dalcroze Eurhythmic exercises to address specific motor goals can also pose as a challenge. However, with practice and by participating in the activities from the client's perspective, music therapists can learn to modify exercises effectively to support client success. Time may be another key factor to consider. Music therapists who are new to Dalcroze techniques may require additional time to research, explore ideas, and gain familiarity with the approach. As well, factoring in time spent personally experiencing and practicing the exercises before introducing them into the music therapy sessions. Similarly, developing knowledge of gross motor difficulties and evidence-based strategies to support motor development may require further study and preparation from the music therapist ahead of sessions. Another challenge may be adapting traditional music therapy experiences to incorporate a Dalcroze Eurhythmics lens, particularly given the limited literature currently available on the integration of Dalcroze Eurhythmics into music therapy practice. Environmental factors may also pose as barriers for the integration of Dalcroze Eurhythmics into music therapy practice. The size and layout of the music therapy space can affect the client's ability to move freely and safely, especially if there are immovable obstacles or limited room for the client to move around. Occasionally, access to materials may be a concern for the music therapist, although the Dalcroze approach emphasizes the body as the primary instrument, with minimal use of props, such as scarves or balls. In some circumstances, a co-facilitator may be required depending on the activities and the dependence of the client. For clients who require physical assistance to participate in the session, the presence of a co-facilitator can help the music therapist implement experiences and provide appropriate support.

Unfortunately, only limited information about the Dalcroze method can be found in books. While some resources, such as song materials, lesson plans, and exercises have been made available, as seen in Dutton (2018), Anderson (1983), and Anderson (2012), the essence of the method is being taught experimentally through Dalcroze training programs in the United States and Switzerland. Importantly, Dalcroze emphasized experiential learning, noting that his materials should serve only as a reference for teachers, who had personally experienced the Dalcroze method, to create their own exercises, games, and materials (Juntunen, 2002).

Likewise, music therapists are encouraged to use their creative freedom to source and develop their own materials, while still respecting the core principles of the Dalcroze approach. As such, it would be advisable for Certified Music Therapists interested in implementing Eurhythmic exercises to take courses to learn more about Dalcroze music education and the approach, to connect with Dalcroze educators, and to enrich their knowledge of the Dalcroze philosophy before integrating the exercises into their clinical practice.

Future Research Implications

Dalcroze Eurhythmics techniques being utilized in a music therapy setting with a Certified Music Therapist to address gross motor difficulties was not tested in this study, consequently, further research in its clinical application is needed. Since the study did not delimit itself to a particular population, nor other clinical goals, future research can be conducted for use with specific populations and clinical goals to examine if Dalcroze Eurhythmic techniques in music therapy are transferable to other goal areas, and if there is a specific population this method may be better suited for. The collaboration between Certified Music Therapists and music educators using Dalcroze techniques can be examined. The collaboration can lead to further research on other techniques and exercises that can be used in a music therapy setting to address not only motor goals, perhaps other clinical goals. Future research can delve deeper into Dalcroze music therapy as a distinct approach to enhancing health and well-being. The integration of Dalcroze Eurhythmics exercises in multi-modal collaboration between Certified Music Therapists and other certified professionals, such as occupational therapists, and physiotherapists, may lead to further research on how music and movement can be used to address diverse types of movement goals. In the music therapy setting, further research can be conducted on how the six Dalcroze Eurhythmics exercises can be conceptualized within recreative, compositional, improvisational, and receptive music therapy experiences.

Assumptions and Limitations

The researcher came into this research with a number of assumptions. First, the researcher assumed that Dalcroze Eurhythmics could support people who experience gross motor difficulties. The researcher similarly assumed that Dalcroze music therapy could be specifically used to target clinical gross motor goals. The conclusions the researcher drew from this philosophical inquiry are theoretical in nature and have not been applied in a music therapy setting. The study focused on gross motor difficulties, therefore, limiting the ability to theorize or

know its benefits of addressing other goals, such as communication, cognitive, emotional, social, and musical skills. The articles examined for this study were limited to articles published in the English language. The philosophical inquiry research method used for this research did not integrate consultation with Certified Music Therapists about their experience or knowledge of Dalcroze music therapy and their perspective on the connection between Dalcroze Eurhythmics exercises and their application to address gross motor difficulties. There was very little literature on Dalcroze music therapy, as well as Dalcroze music education and its therapeutic applications, therefore, the researcher had to draw their own conclusions and parallels between Dalcroze Eurhythmic exercises and what is known about the use of music to address gross motor goals in music therapy contexts.

Conclusion

The philosophical inquiry analyzed the literature in the fields of Dalcroze music education, Dalcroze music therapy, Dalcroze Eurhythmics, and their relationships with addressing individuals experiencing gross motor difficulties. Dalcroze Eurhythmics is a system of repeated rhythmic exercises designed to develop natural rhythms of body, while training for autonomy and precision of movement (Brown, Sherrill, & Gench, 1981). The benefits of Dalcroze Eurhythmics are improved motor coordination, perceptual motor development, and general motor skills, since music auditory stimuli has been proven to increase engagement in movement programs, and Dalcroze Eurhythmics utilizes both music and movement (Mey, 2014). Dalcroze Eurhythmics supports gross motor development by providing a stimulating musical environment and experience (Mey, 2014). The study aimed to provide an in-depth look into Dalcroze Eurhythmics and its music therapy applications, as there is very little literature on Dalcroze music therapy. A case was made for Dalcroze Eurhythmic exercises as ideal for Certified Music Therapists to use when working with clients who experience gross motor difficulties, as they offer a wide variety of structures that shape the interaction and responses between the music therapist and the clients. These responses can be articulated into clear clinical goals, and measured using objective progress indicators. Additionally, the six Dalcroze Eurhythmics exercise types were congruent targeted relevant gross motor skills also addressed by more established music therapy approaches, such as Neurologic Music Therapy. Through future research, more on the clinical applications of Dalcroze Eurhythmics with various populations, and clinical goals may be generated. It is hoped that this study encourages others to

explore Dalcroze music therapy more deeply and start integrating its philosophy into their clinical practice.

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