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# Developing a Dance/Movement Therapy Based Method for Cultivating Mind-Body Connection in Individuals with Parkinson's Disease

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Developing a Dance/Movement Therapy Based Method for Cultivating Mind-Body Connection  
in Individuals with Parkinson's Disease

Capstone Thesis

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Dance/Movement Therapy

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Abstract

Parkinson's Disease (PD) is a neurodegenerative condition, which affects the lives of 1% of all older adults in the Americas, Europe and Australia and .6% of older adults in Asian countries such as Japan, China, and India (Bega and Zadikoff, 2014). This condition largely impacts both physical and psychological wellbeing, often times also impacting self-perception. The connection between the physical and psychological, or mind-body connection, within individual with PD should be continually enriched and explored in order to maintain both motor and non-motor symptoms related to this progressive condition. The current body of research related to the treatment of PD is limited in the area of developing and implementing mind-body movement-based interventions. Further research using movement-based methods, such as adapted Dance/Movement Therapy (D/MT) practices, is needed to prove that these approaches are appropriate and beneficial interventions for cultivating the mind-body connection and improving symptom management for this population. This thesis outlines a mind-body movement-based intervention using adapted and modified D/MT approaches for individuals with Parkinson's Disease. This method uses 'facilitated mirroring', a refined adaption of the D/MT methods of attunement and mirroring, within the movement and verbal dialogue of a collaborative individual therapeutic relationship with two female individuals diagnosed with PD over the course of six months. The results of the methods as facilitated with two individuals from the Parkinson's population are discussed.

*Keywords:* Dance Movement Therapy, Mind-Body Connection, Parkinson's Disease, Mirroring

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*“The instrument through which the dance speaks is also the instrument through which life is lived: the human body. It is the instrument by which all the primaries of experience are made manifest. It holds in its memory all matters of life and death and love.”*

*- Martha Graham, 1953*

For much of the past 400 years, the concept of mind-body dualism has inundated the philosophies of western civilization. Descartes, a French scientist, mathematician, and philosopher, was mostly widely known for first popularizing the idea that the mind and body are separate entities. His philosophy known as Cartesian Dualism declares the isolation of the mind from its anatomical vessel as well as the lack of capacity for intelligence within the physical body. Research in the area of trauma during the 21<sup>st</sup> century, along with the establishment of the narrative and body identity theoretical models have only just begun to break the cycle of this way of thinking. Claxton (2016) suggests that the body, down to the cellular level, prioritizes survival, well-being, and reproduction through action. These proactive actions come as instinctual and learned responses to our experiences as humans. The human body learns through lived experiences to adapt, processing information taken in through the senses, in order to best and most immediately address it's needs. The way the body learns to move and respond to lived experiences influences the development and perspective of the conscious mind, which shapes an individual's perspective of the world and their place within it, which in turn influences the body's actions and response to new situations. This dynamic coordination is widely known as the mind-body connection and is known to directly affect health (Kwok et al, 2016). When a person is aware of this connection, there is a capacity to focus on these interactions in order to increase

“self-consciousness of the body” (Kwok, 2016, p. 122), which can positively impact an individual’s energy, mental clarity, and even tolerance to pain. Movement-based interventions, such as Dance/Movement Therapy (D/MT), encourage constant inquiry into the cultivation of mind-body awareness in order to address physical, emotional, cognitive, and social needs.

Kwok, Chow, and Lai (2016), note that mind-body interventions have been shown to improve the quality of life on a biopsychosocial level for individuals with a variety of chronic illnesses, like anxiety, depression, and cardiovascular disease. Parkinson’s Disease (PD), an idiopathic neurodegenerative condition that manifests through impairments in “physical, cognitive, and functional capacities” (p. 122), is also noted to be positively impacted by the implementations of mind-body interventions, as the progression of this disease largely affects both the mind and the body in tandem. Such interventions, like adapted D/MT approaches that aim to increase self-awareness and cultivate body identity for example, may hold a place in the future of PD treatments.

Current research on treatment and management for Parkinson’s Disease focuses primarily on the pharmacological or surgical methods of symptom management (Vann-Ward et al., 2017). The manifestations of physical and psychological symptoms for those diagnosed with PD are highly individualized and complex, fluxing day to day and affecting one’s overall sense of well-being. Movement-based approaches, such as tai chi, yoga, boxing, and dance classes, that are not designated as therapy, have been the focal point to some of the literature studies as potentially successful complementary and alternative management strategies (Bega and Zadikoff, 2014). These interventions have become widely utilized by the PD population (Kwok et al, 2016), and Neurologists and Movement Disorder specialists are now beginning to refer their patients to mind-body practitioners as well as offer opportunities within their practices and larger medical

entities for patients to participate in group classes with trained professionals. These opportunities for people with PD to engage in movement-based interventions can be extremely beneficial to improving mind-body connectivity. An improvement in the mind-body relationship could mean improvement in motor functions, quality of life, and the biopsychosocial self.

What is missing in the area of supplemental movement-based opportunities for the PD population is a recognized, adapted, and specified one-to-one approach that gives space for those living with this condition to become acquainted with and take ownership of their mind-body connection in a mindful and holistic way with the guidance of a trained and accredited practitioner. Individuals need an opportunity to develop their body identity and restore aspects of their sense of self, that may have been lost within the introduction and acceptance of a PD diagnosis.

With the development of an intervention that addresses these concerns, an individual could be able to acknowledge and connect their movement patterns, mobility eases and difficulties, and bodily sensations with their evolving past and present narratives outside of their diagnosis. This would allow an understanding and recognition of physical and psychological needs while fostering the ability to recognize full body (mind included) changes or behaviors caused or perpetuated by their diagnosis. Exploring movement in an individual setting with the guidance of a Dance/Movement Therapist who is knowledgeable of PD could be an immensely beneficial addition to the journey to a patient living with this progressive condition as D/MT “leads to unraveling the knots, to diagnosis, and to active life, brain, habit change” (Groninger, 1980, p.17).

The existing catalogue of D/MT approaches, such as mirroring and kinesthetic empathy, may be valuable approaches for treating both the motor and non-motor symptoms of PD.

However, to adapt and develop these methods to further accommodate the particular needs of individuals living with PD, while also grounding their implementation in accessible and inclusive theory, could potentially provide an opportunity to foster a mind-body relationship, and unlock potential ways of investigating and understanding ones etiology and prognosis . Caldwell (2018) wrote that “within the lived experience of our body we can feel and express directly, creating a powerful and direct locating of ourselves in the present moment” (P. xx). Caldwell’s sentiment is the fundamental motive behind their theory of bodyfulness, which aims to evoke exploration and investigation of the body and its past and present movement patterns as a practice of reflection and understanding of self. Through further research along with the adaption and modification of existing D/MT practices, it is possible that more movement-based mind-body approaches accessible to this population and aimed at fostering a deeper understanding of body-identity could result in an increase of resilience, empowerment, and general well-being.

This paper seeks to carry out an investigation of a method using adapted D/MT approaches with individuals with Parkinson’s Disease in an individual setting. This method was developed with the aim of cultivating body identity in these individuals in order to restore sense of self and improve overall quality of life. Results of the method will be discussed as well as research recommendations for the future.

### **Literature Review**

This review examined literature focused on the use and effectiveness of adapted D/MT methods as a movement-based mind-body intervention to build and increase a sense of body identity with individuals diagnosed with Parkinson’s Disease (PD). The first section focuses on the etiology, diagnosis, prognosis, and current pharmaceutical and surgical treatment methods for this progressive condition. Following an examination of PD as a medical condition effecting

individuals physically, cognitively, socially and emotionally, the second section defines dance/movement therapy, its differences from recreational dance classes for this population, as well as an investigation of how the theory Body Identity can be applied to individuals with PD.

### **Parkinson's Disease**

#### **Etiology**

Parkinson's Disease (PD) is a progressive condition of the nervous system which affects the production and reception of dopamine in the body and can be recognized by motor symptoms such as bradykinesia (noticeable slowing or freezing of movement), tremors, rigidity, and imbalances of gait and posture (World Health Organization, 2018). The basal ganglia, the area of the brain in charge of involuntary functions, is primarily affected by this disease as the neurons within the area which function as dopamine producers progressively degenerate (Dalle, Mabandla, 2018). In addition to these typical motor symptoms, there are also a number of non-motor symptoms (NMS) that can manifest during all stages of this disease and even before any of the cardinal motor symptoms begin to appear. Such NMS problems include those within the autonomic nervous system, sensory deficits, gastrointestinal issues, sleep disorders, dementia, and behavioral health conditions such as anxiety and depression (Mostafa et al, 2019).

Though research into the cause of this disease is ongoing, the exact etiology of this diagnosis and its varied symptom manifestation in each diagnosed individual remains unknown. Many are of the belief that this condition develops sporadically, while others attribute its onset to genetics, environmental factors such as pollution in the air and toxins from pesticides, and more recently, early life stressors and behavioral health diagnosis. Dalle and Mabandla (2018) explored possibilities of early life stressors and hypothesized that stress experienced during early



development such as, “prenatal maternal stress, early postnatal maternal separation, early postnatal stress, or early social isolation” (p.1) could contribute to long-term neuronal loss and the eventual development of PD just as it is implicated in the pathophysiology of psychiatric illnesses like Generalized Anxiety Disorder and Major Depressive Disorder. Also of note, is the importance of the preclinical phase of PD, which commonly includes unreported symptoms of depression years before the manifestation of the cardinal motor symptoms. Although depression is not a definite determinate for PD, it is imperatively relevant that the connection between the two conditions be acknowledged.

### **Diagnosis and Prognosis**

Diagnosis of PD is commonly a long and arduous process with many tests and visits to neurological specialists, which could either happen very soon or following a prolonged period after physical changes and symptoms have already begun to effect daily life. Examinations of neurological, physical, and psychological conditions are conducted through technological procedures such as brain imaging, in addition to interviews, with short and long term observation periods (Vann-Ward et al, 2017). Mostafa, Mustapha, Mohammed, Hamed, Arunkumar, Ghani, Jaber, and Khaleefah (2019) studied the comorbidity of disorder of the voice known as dysphonia, which affects up to 90% of individuals diagnosed with PD. The study examined four methods of diagnosis using dysphonia as the cardinal indicator of a PD diagnosis. The authors discuss the difficulty of accurately diagnosing PD regardless of the method, due to the disease’s nature as a “multi-agent system” (p. 90). It can be unclear during the diagnosis process whether the motor and non-motor symptoms experienced by an individual and the timing of symptom manifestations are true determinates of PD, or if they can be attributed to other factors such as aging.

Vann-Ward, Morse, and Charmaz (2017) identified the spectrum of changes one goes through before and after a PD diagnosis, which may affect cognitive and neurologic functioning and produce psychosocial difficulties. In order to investigate this, the authors interviewed and listened to personal stories of 25 participants. The results of the participants' information described a unanimous struggle to make sense of sudden differences in emotional and physical wellbeing. It also indicated that individuals experience through trial and error and many visits to doctors and specialists before ultimately being diagnosed with PD. The official moment of diagnosis, the authors concluded, is a turning point, or a "life altering event of enormous significance" (p. 969), causing individuals to struggle in the areas of interpersonal relationships and retaining a sense of identity during the various stages of adjusting to living with PD.

As individuals grapple with a PD diagnosis, it is theorized that a capacity for resilience may be a factor in the speed and magnitude of disease progression. Shamaskin-Garroway, Lageman, and Rybarczek (2015) noted and examined the poignant relationship of non-motor symptoms (NMS), resilience, and QOL as individuals continually adjust to the progression of a PD diagnosis within their bodies. The authors were able to survey 224 self-selected participants with a median age of 64.5 and a diagnosis of PD with a battery of The Resilience Scale for Adults (RSA), the Nonmotor Symptoms Questionnaire (NMSQuest), the Starkstein Apathy Scale (SAS), the Parkinson's Disease Questionnaire (PDQ-39), the Beck Depression Inventory-II (BDI-II), and the Satisfactory with Life Scale (SWLS). Though the final sample size was limited to 138 surveys, the authors concluded from the results of the study that self-reported resilience is notably associated with adjustment to living with PD and that one's perception of such resilience influences the manifestations of NMS and their effects on an individual's QOL (p.12). The authors also noted the potential for improvement of NMS and bettering self-concept through

resilience-focused interventions that give priority to emotional regulation and positive coping strategies.

The prognosis for an individual with PD varies greatly depending on factors like resilience, level of care, treatment and medications, and self-efficacy. Research indicates one doesn't die from this disease per say, rather they die with it, unlike more terminal conditions such as cancer and heart disease. One thing that is consistent across the board is that there is a certain level of vulnerability towards complications stemming from both motor and non-motor symptoms. This especially rings true for physical vulnerabilities. Austraila, Lubumski, Rushworth, and Tisch (2015) studied the patterns of hospitalization of PD patients from 2008 to 2012, taking into consideration the comorbidities, level of clinical treatment, as well as the sociodemographic identity of the individuals. Participants included 5637 patients with a primary diagnosis of PD. Further, all participants had been hospitalized during the course of the study for complications stemming from PD symptoms such as acute trauma from falls, psychiatric illness, reaction to medication, gastrointestinal infection, and complications from dementia. It was ultimately suggested that multidisciplinary teams must create more versatile treatment plans aimed at managing medication, education of PD, dietary needs, physical mobility, speech and swallowing, as well as fall prevention to decrease the likelihood of prolonged hospitalizations for this population.

### **Medical Treatments**

According to the American Parkinson's Disease Association, as of 2018, there are 23 FDA approved medications for treating PD in the United States (APDA, *Medications for Parkinson's*, 2018). These pharmacological treatments are prescribed for motor symptom management by way of dopamine replacement, which consequentially may exasperate or

galvanize the non-motor symptoms of a PD patient (Bega and Zadikoff, 2014) and may also increase vulnerability to other existing health conditions and changes in Quality of Life (QOL) including significant differences in social functioning and alterations in self-concept. Because of this vulnerability, more pharmaceuticals are usually prescribed in attempt to manage NMS and other comorbidities, like depression, sleep disturbances, or hallucinations, which can leave an individual with a taxing medication regime and a myriad of side effects and complications. With proclivity towards both motor and non-motor symptoms and a wide range of origin possibilities, PD has been classified as a multi-system neuropsychiatric disorder (Lubumski et al, 2015) meaning that PD largely effects the whole body, mind included.

As the disease progresses, dopamine replacement medications may lose their ability to treat the motor symptoms as effectively in certain individuals. When this happens, Deep Brain Stimulation (DBS) may be considered to treat bradykinesia, rigidity, tremor, and issues with posture and balance. The process of DBS is an invasive procedure, where an electrode is inserted into one or both sides of the brain to stimulate a specified area through a pulse generator that is implanted in the chest (APDA, 2019). Baertschi, Flores Alves Dos Santos, Burkhard, Canuto, and Faves (2019) systematically reviewed scientific literature regarding the frequent difficulties with psychosocial adjustment after the DBS procedure for individuals with PD. Their review found that DBS leads to reduction in medication and significant decrease in motor symptoms in PD patients but does not stop the progression of PD and in fact may contribute to an increase of NMS including psychological, behavioral, cognitive, and social changes and difficulties. The authors acknowledged the risk of their research as it might sway individuals away from DBS due to negative outcomes, but encouraged a more selective process when considering this procedure, taking time to examine more deeply elements of psychosocial adjustment.

### **Movement-Based Complimentary Medicines**

In addition to pharmaceutical and surgical treatment, the APDA also encourages the exploration of complementary medicines including movement-based interventions and expressive arts therapies (APDA, 2019). In a review of Complementary and Alternative Management (CAM) of PD, Bega and Zadikoff (2014) investigated movement-based methods as possible reasoning behind the lower prevalence of PD diagnoses in Asia in comparison to the Americas, Europe, and Australia. The authors specified eastern mind-body movement-based practices such as yoga, tai-chi, qigong, and dance as well as the expressive therapies as effective and appropriate interventions to restore “disruptions in the balance and flow of energy both physically and psychologically” (p. 59) in individuals with PD. The authors allude to the idea that a strong personal practice of one of these methods perhaps contributes to the lower pervasiveness of PD in some eastern countries like Korea, Japan, China, and India, compared to regions of the western world. As of 2014, seven tai-chi, one qigong, one yoga, and five tango dance randomized controlled trials had been conducted with PD population in various stages of progression and geographical locations. Though data collected through these studies could be considered limited due to demographic restrictions and inherent biases within the implementation and facilitation of these methods and practices, notable improvements in at least one area of motor or non-motor symptoms were recorded. The information presented regarding dance interventions was particularly limited as tango is just one very specified and highly technical dance style, however the discussion demonstrated clear support for dance as an accessible and safe intervention with the population.

### **Dance/Movement Therapy and Parkinson’s Disease**

The American Dance Therapy Association defines D/MT as the “psychotherapeutic use of movement to further the emotional, cognitive, physical and social integration of the individual” (“ADTA”, 2018), meaning that this therapeutic modality aims to address the whole person using movement as a vessel to explore, communicate, process, regulate, sense, relate, expand, and express, among other things. D/MT is the only therapeutic modality that facilitates the connection of the experiences of the mind and body through dance and movement, while simultaneously building kinesthetic awareness and expanding possibilities within a safe space and a supportive therapeutic relationship. The act of unscripted dance and movement in tandem with psychotherapeutic methodology can awaken memory, initiate and further development of body awareness and identity and evoke healthy changes in behavior and ways of thinking, processing, and expressing on a whole-body level.

D/MT differs from recreational and therapeutic dance class offerings in that it is a “holistic, mind-body approach to dance” (Michels et al, 2018) within a safe space and facilitated by a trained and accredited clinician. D/MT offers the chance to explore the connection between mind and body, strengthen body awareness, and process emotional and physical feelings and sensations through movement. In other words, D/MT invites the individual to develop and retain their identity through the exploration and empowerment through movement within the safety and support of therapeutic relationship.

Looking at the experience of living with PD through the lens of the expressive arts therapies like a dance/movement therapist could reveal a more cohesive understanding of symptom etiology and the very personal progression of PD in individuals. Though the exact origin or cause of this condition remains unclear, explorations into the theory, facets, and development of body identity through body-based methods such as D/MT could potentially be a

key factor in helping to determine the reasoning behind specific symptom manifestations and even the development of PD.

### **Differentiating between Dance and D/MT for Parkinson's Disease**

The efficacy of utilizing dance, particularly to improve motor function in individuals with PD, has become globally recognized within the past decade and many programs developed for this population with dance as a central focus are being implemented throughout the world. Acclaimed programs such as the Dance for PD classes, developed in 2001 by former professional dancer David Leventhal from the Mark Morris Dance Group (McCrae et al, 2018), have made headlines as more benefits of dance-based interventions are scientifically articulated and quantified through research studies. Dance classes that use a structure similar to the Dance for PD program are becoming popular around the world as teachers of dance become knowledgeable and trained to be able to lead such experiences for the movement disorders population.

Westheimer (2007) described the methods behind the Dance for PD program in Brooklyn, NY. In an effort to investigate the methods, Westheimer recorded and synthesized observations of those who participated in these classes over the course of 5 years. The goal of the dance classes was to offer a social activity that encouraged support and community, as well as an outlet for exercise and emotional expression through an adapted traditional dance class to suit the needs of an individual with PD. These classes took place at a well-equipped and handicap accessible dance studio belonging to the Mark Morris Dance Group. The structure of the class was consistent, a seated warm-up, followed by an invitation to stand with hands on the back of the chair for tactile support, followed by traveling steps across the floor with support for those that were able. The teachers used an encouraging and low-key teaching style to ensure

participants were comfortable and had the freedom to move as their bodies allowed throughout the class. Using repetition, variation, and improvisation challenged both the mental and physical abilities of the participants. Visual and musically rhythmic cues provided by a live accompanist, helped “persons with PD who no longer can rely on their unconscious sense of balance and ability to initiate and control automatic movements such as walking” (p. 2). The class closed with a circle, a well-known Dance/Movement Therapy method, where the participants had the opportunity to acknowledge one another and their time together through movement.

The Dance for PD program, though acknowledged as effective and beneficial for the PD population by leading specialists and neurologists, is not considered dance/movement therapy (D/MT) for a few reasons. First, the classes are led by dance artists who “utilize the innate therapeutic power of dance” (Imus, 2014) rather than accredited clinicians. Imus (2014) explains that though both dance teachers and dance/movement therapist use a continuum of dance approaches in their work, the dance/movement therapist is additionally equipped with skills necessary to respond to emotions and issues that come up in the moment with their clients. Second, the program does not utilize a psychotherapeutic model or allow space for verbal dialogue and processing as therapeutic intervention in its implementation of movement. Third, the structure of the classes is directive and planned with teaching dance and choreography as the focal point, rather than the process and facilitation of connection, expression, communication and change through movement being the objective like in D/MT.

### **Dance/Movement Therapy for Parkinson’s Disease**

There is a substantial amount of research on the therapeutic benefits of using dance recreationally and traditional instruction in group settings like the Dance for PD program (McCrae, 2018), but little has been published describing the benefits of a clinical application of



dance and movement by a trained dance/movement therapist with the PD population. Michels, Dubaz, Hoethal, and Bega (2018) note D/MT's potential to attend to both the motor and non-motor symptoms of PD simultaneously as it includes "the bio-psychosocial development of the individual" (p. 249) along with aspects of aesthetics, education and recreation, unlike traditional dance instruction. These authors conducted a small study with 13 participants to determine whether attending a weekly D/MT would be "safe, feasible, and enjoyable" (p. 249) for the participants. Though the study was limited to 10 weeks and a small demographic of subjects, the D/MT group mind-body intervention, facilitated by an accredited dance/movement therapist, was found to meet the authors' aims of enjoyment and safety for all the participants. Though this article concludes the feasibility of D/MT interventions for this population, the authors recognize limitations for further implementation within a wider demographic due to low accessibility to accredited dance/movement therapists for many communities.

### **Body Identity**

Vann-Ward, Morse, and Charmaz (2017) describe identity dilemmas experienced by recently diagnosed individuals with PD. Such dilemmas included a proclivity to risk taking, emotional numbness and disconnectedness related to coming to terms with their diagnosis, a desperation to return to the life they had before PD, isolation, and anxiety and an erosion of self-worth among other challenges to their sense of self. The experience of these dilemmas is a difficult shift of information, filled with grieving the loss of the idea of the life one might have imagined, the loss of their mobility and some autonomy, and changes of their roles in family and social systems. This grappling with identity is a time of intense adjustment, followed by a renewal of reconnection of self, forming new aspects of identity and sense of self as the reality of the rest of their lives evolving with the progression of PD sets in. Changes and difficulties

within the multiplicity of the body are central to this intense adjustment, in turn changing and effecting one's interpersonal and intrapersonal relationships. If the body is where it all begins, it is appropriate to include and even focus on exploration and contemplation of the body and its movements within this identity renewal and search for the root cause of PD.

Body identity, a developmental theory defined by Caldwell (2016), is at the core of how humans understand and develop their sense of self. Experiences, from the time in the womb to the present moment, are observed and internalized by the body which in turn shapes and informs the way we move throughout the world and the way we view ourselves within it. To understand the body and examine how it moves, shifts, and changes from birth to death is to understand and connect to self. The narrative of the body with its memory, patterns, and behaviors, forms the cognitive mind within its infrastructure as we grow and is indicative of the human experience. Body identity is constant, plastic, conscious and subconscious, it is "multiple, non-verbal, relational, situational and social" (p.228). Though the author does not define specific therapeutic methodology to which this theory can be applied, it can be assumed that body-based practices like D/MT with a trained facilitator would be an appropriate place to begin.

As with any theory concerning self-concept and awareness, body identity does not develop or expand by simple means. It is wrought by ample investigation and experiencing through movement exploration, discussion and time taken to listen with and to the body. In individual's with PD, this is easier said than done especially when awareness of the body-mind connection has not been approached in the person's past. A space where the whole of individual with PD is the centralized focus, like in an individual D/MT session, where time is taken by the facilitator to foster compassionate and kinesthetic empathy, where past and present experiences

are considered, and where the individual can feel safe to move and process at their own speed is imperative for members of this population to cultivate a restored sense of body identity.

### **Methods**

The method described in this thesis was developed to address the need for an individualized holistic mind-body movement-based approach to cultivate awareness, ownership, and restoration of body identity, by adapting D/MT approaches, for individuals with Parkinson's Disease (PD). For this intervention, an integrative approach comprised of elements from humanistic therapies in tandem with existing D/MT methodologies was used within the dynamics of a one-to-one collaborative therapeutic relationship with two separate participants. The primary D/MT methodology used within the 'collaborative trial-and-error' process of this intervention included a warm-up, mirroring, the use of mental visualization and imagery, as well as verbal processing and dialogue. The initial method design came from the intuition of the clinician's existing knowledge of D/MT and psychotherapeutic methods, prior experience with members of the PD population,

### **Location**

The location of this intervention, a movement disorders center in Vernon, Connecticut, was a satellite location of a larger hospital system that specializes in the treatment of individuals living with conditions such as PD, Ataxias, Dystonia, Essential Tremors, and physically debilitating neurocognitive disorders such as dementia. This location was chosen due to the clinician's existing connection to the facility, the familiarity of the facility among members of the local Parkinson's Disease population, and the availability of the 'wellness room' within the facility to conduct sessions. The wellness room had sufficient space for a wide array of

movement possibilities and was equipped with a state-of-the-art sound system, adjustable overhead lighting, a wall of floor to ceiling mirrors, folding chairs, a closet with various exercise mats, weights, and balls.

Over the span of four months, two participants attended weekly hour-long sessions with the facilitator in the wellness room at movement disorders center. The room was consistently set-up with two folding chairs facing one another, the mirrors uncovered, and the rest of the space open and clear of other furniture. Ambient and relaxing acoustic or electronic music without lyrics was played throughout the session at a medium volume to aid in creating an inviting and soothing. The lights were adjusted to be at a lower setting, providing a soft atmospheric quality.

### **Participants**

The participants were referred from the Medical Director and Head Neurologist at the movement disorders center in Connecticut. Participants included two Caucasian females aged 69 and 73, who had each a five to ten-year diagnosis of Parkinson's Disease. Henceforth, the participants will be referred to as K and J.

### **Procedure**

Participants each attended between 20-25 hour-long individual D/MT sessions over the course of six months. The protocol for the intervention utilized attunement and intuition of both the facilitator and participant in the present moment to guide the movements and discussion needed in place of a consistently implemented procedure. Each of the sections below describes elements of the method that were implemented as the facilitator deemed appropriate throughout each session, the most consistent elements being the verbal check-in, and the closure.

### **Verbal Check-In**

Each individual session began with a verbal conversation with the participant as soon as they entered the wellness room, including an overview of the prior week. Inquiries prompted the participants to verbally relay an account of events, physical activities, and both interpersonal and intrapersonal occurrences that were significant. From there, the facilitator would consistently ask two questions: 1.) “How does your body feel today?”, 2.) “How do you feel like you need to move today?”.

### **Facilitated Mirroring**

Using the answers to these questions as a baseline, the facilitator would structure a seated, breath-based warm-up in the moment that invited the participant to connect to their bodies in way that was appropriate to their emotional and physical state. The facilitator invited the participant to follow along and embody movements aimed at regulating any heightened body or mood states if needed, such as dyskinesia, draw focus to the experience of sensing and mobilizing, and initiate a movement dialogue that continued throughout the remainder of the session. The warm-up, always influenced by the present state of the participant and improvised intuitively by the clinician, would include the technique of ‘*facilitated mirroring*’, or mirroring led primarily by the facilitator using attunement to refine, expand, and advance the participant's movement range and vocabulary.

### **Collaborative and Attuned Dialogue**

After warming up, themes of each session’s movement dialogue were built around the subjective movement needs of the participant using improvisation and moments of facilitated mirroring along with intermittent exchanges of reflective discussion as questions and connections would come up for both the participant and clinician. This exchange of verbal and

movement dialogues allowed for equal contribution from both client and facilitator to progress towards treatment goals while also holding a space safe enough for equal exploration within the dyad. This required a mutual understanding from both members of the one-to-one therapeutic relationship that neither person had the exact solution or protocol to achieve the desired results, but with authentic investigation through willing and shared movement dialogue and verbal discussion, new discoveries and progress towards restoration could be made.

The movement sequences introduced by the facilitator and embodied by the participants after a warm-up were aimed to first match and validate the energy of the individual in the present moment before any invitation or encouragement to explore new ways of moving. Hand movements started small within the near kinesphere if the participant was having difficulty with rigidity that day. Sequential spinal movements began slow and in sync with breath if the participant's energy was lower or if they mentioned that they were waiting for a recent dose of medicine to activate. The participant would follow the facilitator in real time, with the space to move independently and spontaneously. These movement sequences would be repeated two to three times with moments of verbal discussion and processing in between, letting new connections and approaches to the movement emerge and be applied each time the movements were repeated.

### **Cueing with Touch**

On a few occasions, the facilitator implemented gentle touch cues to continue in the expansion and furtherment of the participant's movements. The use of touch as cueing was consistently and clearly communicated beforehand and only implemented with the participant's verbal consent. Most often, touch was used when appropriate along with verbal prompting to physically cue muscle groups or extremities to gently let go of tension or to release further into

gravity. The facilitator also utilized “*Assisted Mobilization*”, which was an active supporting and moving of a participant’s full extremity (leg or arm) while verbally encouraging complete relaxation of that muscle group.

### **Mental Visualization and Imagery**

Mental visualization and imagery were often used throughout each session as a means to connect familiar concepts to the participants’ approaches to both functional and expressive movements. The facilitator would use descriptive and appropriate images preferred by the participant, usually relating to nature or weight, in order to evoke different ways of accessing certain movement and a deeper attachment to the movement in question. The concepts of acknowledging, trusting, using, and moving with gravity in order to achieve the participant's functional movement/body-oriented goals were consistently introduced and discussed in relation to functional mobility and movement patterns throughout the session. For example, using the image of sand pouring from the top of the head while taking time to curve to both the left and right sides allowed for greater range in mobility through relaxation of the neck and shoulders. These images would be discussed verbally before the participant investigated their essence through movement.

### **Standing, Walking, and Closure**

If there was time left in the session after ample seated movement exploration and discussion, standing and walking as a culminating activity was encouraged by the facilitator. The themes and functions that had emerged as poignant throughout the session would be revisited through a movement that is able to serve as both functional and expressive. Many times, the question “what do you notice?” would be asked by the facilitator to evoke connection between

exploration and insight from earlier in the hour. The participant would have a few minutes to explore walking with the added application of the new movement concepts. Dialogue would remain open to give space for vocalization of questions, difficulties, or more insights as they came up. The facilitator would either choose to witness the participant walking or join them at their side. Closure of each session would be initiated with a verbal discussion of the progress made that day and a ‘homework’ assignment, which consisted of an encouraging invitation for the participant to think about an aspect of movement that been explored that day at some point in their daily lives over the next week.

The facilitator would then take 10-15 minutes to process and reflect on the session through movement and brief note-taking. Poignant events, ideas, and contemplations regarding both of the participants’ unique and individualized cases and were consistently processed and synthesized with the facilitator’s mentor, a board-certified D/MT and Somatic Psychotherapist whose specialization in body-centered practices, the polyvagal theory, and trauma brought exciting insights and connections to the process.

## **Results**

The following sections discuss the observed results of each element of the method as implemented by the facilitator with the two participants.

### **A Flexible Procedure**

As Parkinson’s disease is a fluxing condition, it was important for the protocol of this method to be flexible and adaptable to fit the needs of the participants. Without a regimented procedure, the facilitator was able to implement the different elements of the method based on the present state of the individuals. This flexibility allowed for greater attunement within the



therapeutic relationship as it gave validation to the present subjective needs of the participants while also holding space for movement expansion and exploration. It is believed that the space for unregimented verbal dialogue and movement exploration contributed to a raised sense of empowerment and elevated ownership of body identity.

### **Verbal Check-In**

A verbal check-in at the beginning of the session invited the participant to state their present needs, relay significant information, and become acclimated to the space. This allowed for the participant to be validated and empowered by having a voice in how the session would be shaped. For the facilitator, it was a time to become attuned to the current baseline of the participant by actively listening with both mind and body. This resulted in a deepened sense of empathy and the ability to intuitively implement the elements of the method more effectively. During this check-in, the participants would also mention how concepts from the previous sessions would come to mind throughout the week, which relayed the continued practice of strengthening the mind-body connection due to the information gleaned from the method.

### **Facilitated Mirroring**

Using the D/MT method of mirroring as a baseline, the facilitator was able to modify the method to better suit the participants. The act of mirroring in D/MT is empowering and validating on its own, but in this method the additional element of facilitating mirroring with an intention, either to regulate or activate the participant's body, acted as a vessel for the facilitator to attune to the needs and the movement of the participants in present time through movement, rather than through verbal dialogue. This allowed for the participant to move and follow along with little resistance or worry, and for the facilitator to observe the details and nuances of the

participant's movements in the moment. The implementation of this approach consistently yielded an observable regulation of any tremors or dyskinesia, a visible loosening or relaxation of physical tenseness and rigidity, and gainful discussion with the participants processing the movement sequences and what came up for them in their body.

### **Collaborative and Attuned Dialogue**

The constant interludes of collaborative discussion, reflections, and suggestions of movement exploration between facilitator and participant fostered a rich and stable therapeutic relationship. The ability to verbally discuss the process in the moment allowed for feedback from both parties to inform what was and was not beneficial throughout the progression of the session. This approach evoked mind-body connection and encouraged further exploration of movement. Giving the participants the space to influence and shape their experiences during the sessions enabled a sense of ownership and validation that they are the true experts on their condition.

As the therapeutic relationship evolved and more ranges movement were explored, the number of honest and insightful connections between body movements and past and present narratives increased. Memories of past experiences and travels were activated by the movement dialogue and verbal discussion. The participants were also able to begin making connections between thinking behaviors and both functional and expressive movement patterns throughout the session due to the facilitators verbal and movement prompts. Both verbal and movement dialogues resulted in fruitful discoveries of untapped mobility and expansion of dynamics and initiation of movements.

### **Cueing with Touch**

The application of touch introduced physical feedback from an outside stimulus that offered support and invited an increase of trust in the participant's own body as well as within the therapeutic relationship. Gentle touch cues often elicited a relaxation in tense muscles while assisted mobilization, allowed the participants to actively encourage their larger working muscle groups to release during mobilization. This use of touch cues increased the participants control over their body actions and also their abilities to initiate mobilization without a strenuous amount of effort.

### **Mental Visualization and Imagery**

The use of connecting body movements to familiar concepts that were able to be clearly visualized resulted in a more nuanced and integrated embodiment of the movement task at hand. The facilitator observed that the more each participant understood the image being described, the fuller their movements became. Using mental imagery also stimulated various memories from the participants' past which were brought up during verbal discussion. This stimulation of memories through images and embodiment further cultivated a stronger sense of mind-body connection.

For one participant, the facilitator was able to notice a visible difference week to week of decreased tension held in the neck and torso at the end of each session. The images of sand pouring from the head and giving in to gravity decreased the rigidity in her torso and eventually allowed her to touch the floor while curving and leaning and to each side in a seated position. Another notable image that was beneficial was that of a fiddlehead unfurling in relation to the spine uncurling from a slouched and closed position to an open and expanded upright posture. This image incited successful execution of sequential spinal movements and a more upright

posture. Rigidity in the spine and pelvis began to observably decrease in both participants as different images involving twisting, lengthening, and opening were explored and introduced.

### **Standing and Walking**

Time to stand and walk towards the end of the session acted as an evaluation of the work done throughout the session. The participants were able to synthesize the concepts processed during the hour and apply them in a functional manner while verbally reflecting. There was consistently an observation of increased confidence and renewed energy in both participants during this time. Walking incited ideas and connections of how the movements and principles processed during the session could be applied over the next week. The ‘homework’ assignments evoked continued mindful moving and fruitful mind-body contemplation in the participant’s daily life resulting in increased incitation, movement exploration, discussion during the next session.

### **Discussion**

The literature reviewed provides an overview of Parkinson’s Disease, current treatments, and the existence of few studies that highlight the efficacy of recreational therapeutic dance and Dance/Movement Therapy for this population. The findings within the literature suggest the need for a movement-based intervention that cultivates the mind-body connection as a supplemental symptom management strategy for the PD population. The method developed and outlined in this thesis attended to this profound need through implementing weekly individual D/MT sessions in order to cultivate and deepen the body identity of two individuals diagnosed with Parkinson’s Disease (PD).

The development of this method addressed the need for individualized and holistic approaches to maintain and improve full body wellness within the treatment options for individuals with PD using a movement-based intervention in tandem with psychotherapeutic methods. This method successfully addressed both motor and non-motor symptoms as well as aspects of the common occurrence of difficulties with identity for those diagnosed with PD. This approach focused on the individual and their unique experiences, using verbal and movement dialogue in familiar and new ways to process and empower the sense of self.

The process for the facilitator was rich with discoveries and development of approaching the work of D/MT in an individual therapeutic setting. Through the use of intuition as a guide and mirroring as a tool to access kinesthetic empathy, a stronger sense of authentic attunement was honed within the therapeutic relationship. The allowance for active collaboration with the participants throughout the course of the sessions brought genuine and active feedback that informed intuition and deepened the capacity for trust and understanding between both facilitator and participant. As the weeks progressed the facilitator noticed a heightened ability to connect with the participants and their movements in the present moment while remaining attentive and open to hold space for participant's processing of past experiences. They also noticed shifts of perspective and connection within their own body and movement patterns to past and present experiences, speculating that consistently witnessing others becoming more aware of their bodies aided them in cultivating their own body identity.

The facilitator was able to apply an in depth understanding of D/MT methodology, knowledge of PD, and attunement within individual D/MT sessions to explore and discuss movement, the body, and awareness of past and present experiences and sensations with two patients diagnosed with Parkinson's Disease. What emerged from these sessions was a myriad of

information gained and connections made by both the participants and facilitator; the beginning of understanding how and why honing body identity for individuals within the PD population through movement-based interventions could be extremely effective and beneficial.

The positive findings and observations of the participants and self throughout the process of developing this method inform that this approach and approaches similar to this may be beneficial to a wider demographic of the PD population as well as other chronic movement disorders. More exploration of this method in cross-cultural settings needs to be done, as both participants were white females from Connecticut, in order to calibrate the approach to be accessible and inclusive to all individuals living with PD. Research to examine the differences between participating in D/MT in a group setting verses an individual therapeutic setting is recommended to continue investigating the benefits of these approaches with this population.

Through further development and adaption of D/MT methods as well as other body-based practices, a new way of approaching treatment for this disease may emerge and initiate much needed changes in treatment approaches to other neurodegenerative diseases as well. There is a need within the medical community to continue looking at and investigating PD through a more holistic and person-centered lens that encourages a more powerful and confident sense of self-concept for individuals of this population. More research to continue investigating body identity and this population may lead to break-throughs resulting in the ability to pinpoint more efficient and patient-specific interventions. As the expressive arts therapies are grounded in theories of humanistic and collaborative approaches, perhaps mind-body methodologies such as those found within this D/MT method are aptly suited to supplement approved PD treatments and address the whole individual who happens to be living with PD rather than focusing solely on managing PD symptoms through medication and surgical means. Perhaps studies that implement more methods

that use mind-body movement-based interventions, like this D/MT based method, in once-to-one therapeutic could aid in finding and pinpointing the etiology of this disease and could provide data that might eventually find a cure.

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**THESIS APPROVAL FORM**

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**Student's Name:** Amy Elizabeth Motson

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In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

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