THE DYNAMICS OF A THERAPEUTIC DANCE/MOVEMENT INTERVENTION FOR INDIVIDUALS WITH BRAIN INJURIES: COMPARISON WITH PHYSICAL THERAPY USING LABAN MOVEMENT ANALYSIS

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(ABSTRACT)

Addressing the comprehensive needs of individuals with brain injuries is a growing concern in brain injury rehabilitation as well as evaluating the efficacy of these conventional therapeutic modalities: cognitive rehabilitation and physical, occupational, and speech therapies. Therapeutic dance/movement has not been an integral part of these core services. I have observed its potential, however, during the past thirteen years while providing this intervention to individuals with brain injuries.

The focus of this dissertation was to gain a better understanding of the dynamics of a therapeutic dance/movement intervention for individuals with brain injuries by comparing it to conventional physical therapy. Physical therapy, given its longevity in providing rehabilitative services to individuals with brain injuries, afforded a means by which to more systematically explore therapeutic dance/movement. Five individuals with brain injuries were observed and analyzed as they participated in five weekly therapeutic dance/movement sessions and five weekly physical therapy sessions. Laban Movement Analysis (LMA) was used as the observation and analytic tool for the purpose of elucidating similarities and differences between the two interventions in relation to the five case studies.

Two questions guided the inquiry: (a) What are the similarities and differences between a physical therapy intervention and a dance/movement intervention? and (b) What are the dynamics of a therapeutic dance/movement intervention?

Findings revealed that the physical therapy intervention focused specifically on body level connectivity and single joint action movement from a Body perspective. In comparison, the dance/movement intervention incorporated body level connectivity in addition to the dynamics of Breath/Core Support and Grounding, Effort-Life, Spatial Intent, and Aspects of Shape, providing the spectrum of Body, Effort, Space, and Shape (BESS) components in harmony with the Movement Themes: Whole/Part, Inner/Outer, Function/Expression, Exertion/Recuperation,
and Mobility/Stability. The dance/movement intervention imparted an integrative mind-body approach to learning about one’s Inner and Outer self and one’s ability to cope with and connect to one’s environment.

Knowledge was added to the current literature at an opportune time in the brain injury rehabilitation field. Rehabilitation professionals are recognizing the need to transform current assumptions regarding the essential aspects of brain injury rehabilitation and seek additional non-medical model approaches to rehabilitation. This study offers a therapeutic modality along with a viable measurement tool that has the potential for meeting this need. Recommendations for future research are offered.
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CHAPTER 1

INTRODUCTION

Traumatic and Acquired Brain Injury

Medical and neurosurgical techniques have significantly improved since the 1970s, creating a dramatic increase in the number of persons surviving serious brain injuries. It is estimated that 5.3 million Americans currently live with long-term or permanent disabilities resulting from a brain injury (Centers for Disease Control and Prevention [CDC], 2006; CDC, 1999; Thurman, Alverson, Dunn, Guerrero, & Sniezek, 1999). Each year, an estimated 1.4 million people are treated for brain injuries in hospital emergency rooms (CDC, 2006; CDC, 1999; Thurman, et al., 1999). The cognitive, physical, and psychosocial changes that occur in an individual post brain injury are often profound, with life-long disabling conditions that are life altering and profoundly difficult (National Institutes of Health [NIH], 1999; Texas Traumatic Brain Injury Advisory Board, 1999). Re-learning community integration and life skills is a significant barrier for this population attempting to restore independent, productive, and socially satisfying lives while adjusting to long term or permanent physical, cognitive, and emotional changes (Corrigan, 1994; Adamovich, Henderson, & Auerbach, 1985). Meeting the long-term needs of individuals with brain injury remains the primary challenge in rehabilitation (Corrigan, 1994).

Traumatic brain injury (TBI) is defined as “an insult to the brain, not of a degenerative or congenital nature but caused by an external physical force that may produce a diminished or altered state of consciousness which results in an impairment of cognitive abilities and physical functioning” (CDC, 1999, p. 1). According to the CDC, TBI can also result in the disturbance of behavioral and emotional functioning. These impairments often cause permanent disability and decreased independent living functioning (CDC, 1999). Acquired brain injury (ABI) is an injury to the brain that is not hereditary, congenital, or degenerative and is a result of an internal physical force or injury to the brain (CDC, 1999). Such an injury includes a stroke, aneurysm, brain tumor, and anoxia. These injuries may produce a diminished or altered state of consciousness, which results in an impairment of cognitive abilities and physical functioning. They also result in the disturbance of behavioral and emotional functioning. These impairments often cause permanent disability and decreased independent living functioning (CDC, 1999).
Whether an individual sustains a brain injury caused by a TBI or an ABI, the effects often result in permanent disability with diminished cognitive, physical, and psychosocial abilities. Throughout this study, I will use the term *brain injury* in reference to both categories of injuries. I will use TBI or ABI separately when the need arises to distinguish between the two categories.

**Rehabilitation Services**

Brain injury medical and rehabilitation services is a relatively new field, emerging through the advancement of medicine’s ability to save lives following catastrophic brain injuries. It has developed largely driven by the needs of soldiers who sustained penetrating or open head injuries. Beginning in World War I, the United States acknowledged a moral obligation to rehabilitate injured soldiers and assist them in returning to employment. The experience of rehabilitating those with brain injuries provided for the development of valuable principles and practices in brain injury rehabilitation medicine, which enhanced the specialization of this field (Eldar & Jelic, 2003). Specialized rehabilitation services were introduced to this population and included physical therapy, occupational therapy, and speech-language therapy. Physical therapists came from hospital settings working with polio patients, occupational therapists focused on crafts and return-to-work, and speech-language therapists concentrated on communication disorders including aphasia (Cohen & Reed, 1995). Physical therapy led the way in progressive therapeutics to injured soldiers.

After World War II, it was not until the 1970s that a resurgence of focus on brain injury rehabilitation resulted from an increased number of individuals surviving from motor vehicle accidents due to advances in medical technology. Specialized rehabilitation units were established similar to spinal cord injury rehabilitation (Cohen & Reed, 1995). One of the first acute brain injury units was the Rancho Los Amigos Hospital near Los Angeles. This program developed the cognitive rehabilitation protocols for therapy with patients at differing levels of recovery that are standard for many centers in the United States today. One of the first day-treatment rehabilitation programs was established in 1975 in Tel Aviv by the Rehabilitation Department of the Israeli Ministry of Defense co-jointly with the New York University Institute of Rehabilitation Medicine (Boake, 1989). The program in Tel Aviv was one of the first to focus on survivors’ cognitive and behavioral deficits rather than primarily on individuals' physical deficits (Boake, 1989).
Similar programs were developed later throughout the United States, as were residential treatment programs for post-acute brain injury survivors. The number of specialized brain injury rehabilitation programs increased significantly during the 1980s with the continued increase in brain injury survivors. Beginning in the 1990s, due to the arrival of managed care, it became more difficult for individuals to remain in in-patient acute and post-acute rehabilitation programs for an extended period of time. This rapid growth in brain injury rehabilitation over a relatively short period of time caused several problems within the field. Rosenthal (1996) described the state of brain injury rehabilitation as follows:

The modern age of brain injury rehabilitation has experienced rapid growth as it has moved from the era of enlightenment to the era of consolidation during the past two decades. This growth has been characterized by a proliferation of specialized programs, development of innovative treatment methods, and an expansion of the care continuum. Unfortunately, the scientific foundation for much of commonly accepted practice has not kept pace with these developments. As practitioners attempt to deliver high-quality care under the new cost-reduction philosophy of managed care, there is a need to systematically develop and utilize outcome measurement systems that evaluate the efficacy of our brain injury rehabilitation programs. Outcome measurement in this rehabilitation must meet the need of a diverse set of customers. It is critical to fully evaluate the physical, neuropsychological, and psychosocial consequences of traumatic brain injury and determine which treatment methods are most effective in ameliorating these problems and result in optimal long-term outcome. Meaningful measurement systems will need to address customer satisfaction, long-term outcome, quality of life, and cost-effectiveness. (pp. 88-89)

Similar findings were reported thereafter within the literature to support Rosenthal’s claims (van den Broek, 2005; Hammond, 2003; Ylvisaker, Hanks, & Johnson-Greene, 2002; Rice-Oxley & Turner-Stokes, 1999; Chestnut, Carney, Maynard, Mann, Patterson, & Helfand, , 1999).

**Dance/Movement as a Bodily Kinesthetic Approach**

According to Hackney (1988):

Kinesthetic teaching is important as a learning modality and is also known in some sense to be developmentally more basic and central to life than other inroads and it can be
trained. We are integrated moving beings, constantly revealing ourselves in movement regardless of ability. Paying attention to how we move will uncover knowledge. (p. 28)

Studies in neurophysiology have demonstrated that bodily kinesthetic experiences produce learning that establishes especially strong neural pathways in the brain and that when individuals participate in this type of learning approach, the two hemispheres of the brain are simultaneously engaged and produce long term memory (Parente & Hermann, 1996). The authors also suggest that generalizeable learning occurs using this approach. Kinesthetic experiences are especially important for individuals with brain injuries due to their difficulty with learning and transferring or generalizing learned skills as a result of their cognitive deficits.

Berrol (1990) discussed the neurophysiological literature that supports the argument that the mind and body are connected and that movement increases bodily kinesthetic, proprioceptive, tactile, and vestibular reception. In doing so, Berrol asserted that dance/movement therapy with an individual with a brain injury provided a holistic approach in which movement was a catalyst for positive change. The assertion was founded on observation, staff feedback, and neurophysiological literature. Although there was no published data collection or data analysis to support it, the article did, however, provide a very strong argument to support the belief that kinesthetic learning, specifically through dance/movement, can be a beneficial treatment modality in brain injury rehabilitation.

Using movement as a teaching process is called “active learning” (Minton, 2003). Research has shown that “students learn best if they are actively participating because the active learning model encourages movement” (p. 37). Nonverbal communication is based on the principle that ideas and feelings expressed in words actually start in the body. Minton (2003) stated that:

Rugg (1963) wrote that the first flash of meaning is in the body. Before you write or speak, there is a physical response in your body. Rugg called this response “felt-thought”, and said that there is no mind except in responses of the body. (p. 38)

Laban Movement Analysis

A similar perspective was shared by Rudolph Laban (1879-1958) who also believed in the meaning of movement. Laban, born in 1879 in what was then known as the Austro-
Hungarian Empire, studied human movement in a variety of settings to form affinities, relationships, and interrelationships and created a vocabulary using words and symbols to observe, describe, and analyze human movement. In forming his theory of movement, Laban extracted knowledge from philosophers and pioneers including Plato, Jung, and Delsarte (Hodgson, 2001). Beginning around 1900, Laban began to question why certain movement sequences form similar patterns in the body. He posited that movement of the body and of the mind is the basis of all human activity and that all movement is meaningful. Delsarte (1811-1871), a researcher devoted to discovering the laws that underlie human expression, developed several theories regarding expression, harmony, and balance which are seen in Laban’s work (Hodgson, 2001).

In Laban’s view “that the quality of movement in a living thing (its nature and function) is an indication of the quality of life” (p. 65). His movement theories were extended and applied by his students and colleagues and have resulted in the development of Laban Movement Analysis (LMA) (Chi, Costa, Zhao, & Badler, 2000). LMA is a systematic approach to observing, describing, and analyzing qualitative and quantitative changes in human movement through four basic components - Body, Effort, Space, and Shape (BESS). Movement themes were developed by his colleagues in applying Laban’s theory and application of movement. The themes used in this study include: Inner/Outer, Mobility/Stability Exertion/Recuperation, and Function/Expression, and Whole/Part. Please refer to chapter 3 for a detailed description of LMA and its components of BESS, BF, and Movement Themes.

LMA provides a comprehensive language and analytic framework for describing movement applicable to any body movement research (LIMS, 1990; Freire, 2001; Bartenieff & Lewis, 1980). LMA symbols have been developed to correspond with the terminology. Please see Appendix A for LMA terminology with corresponding symbols.

The Body component of LMA was further elaborated and augmented by Irmgard Bartenieff, one of Laban’s students, and is now known as Bartenieff Fundamentals™ (BF). For the purpose of this study, I have included BF under the ‘Body’ component of BESS. BF is an organized system that focuses on movement integration and harmony. When moving, one’s coordination is affected by body connections, center of weight, and the relationship to initiation and follow-through of a given action. In developing the principles of her Fundamentals, Bartenieff, founder of BF, was concerned with the internal support of the body to facilitate
functional and efficient movement experiences. As a result, Bartenieff developed concepts, principles, and exercises which apply to body connectivity and its relation to the environment.

Movement themes are overarching LMA concepts that relate to the wholeness of the movement experience in relation to one’s environment. These themes are discussed in Chapter 3.

LMA encompasses a bodily kinesthetic approach to learning skills as well as analyzing movement. The skill acquisitions are learned experientially from a body perspective such as when one learns how to swim, ski, or ride a bike. The LMA frameworks provided a meaningful analytic tool for my study.

### Problem Statement

According to the CDC (1999), there are an estimated 5.3 million Americans living with disabilities resulting from a brain injury. The numbers continue to grow. Specialized programs and treatment interventions for individuals with brain injuries are vital in order for them to live full and productive lives. Historically, treatment interventions for individuals with brain injuries have been compartmentalized with each therapeutic modality specializing in and working on a specific aspect of an individual. For example, physical therapy concentrates on an individual’s mobility, occupational therapy focuses on activities of daily living, speech therapy on issues related to swallowing and communication, and neuropsychology on adjustment to disability issues. Much less, if any, focus has been placed on integrating the physical, cognitive, and psychosocial components of individuals with brain injuries together in one therapeutic modality to create an integrated mind and body approach to rehabilitation. Hammond (2003) states, “it is unclear who will recover and what is attributable to such changes…there is a pressing need to determine effective methods to promote recovery after a brain injury” (p. 306). Evidence exists that the mind and body are interconnected and communicate together to form a unified integrative self (Cotterill, 2001).

To date, evidence of efficacy using the current treatment interventions for individuals with brain injuries has either been based on models of stroke rehabilitation or has been lacking altogether (Sisto, 2002). These weaknesses and inconsistencies are relatively common in growing fields such as in brain injury rehabilitation. While we should not discount the long-standing therapy approaches of conventional physical, occupational, and speech therapy, the lack of efficacy with traditional treatment modalities opens up the possibilities for other treatment modalities to be explored that have not been commonly applied in brain injury rehabilitation.
Four factors make it timely to begin to systematically explore and better understand the use of a treatment intervention using a bodily kinesthetic approach of dance/movement:

- the relative youth of the brain injury rehabilitation field; supported by 100 plus years of related medical and rehabilitation experience
- the steadily increasing number of individuals who sustain brain injuries annually;
- the continuing need to determine effective approaches to brain injury; and
- the fact that individuals continue to live with a range of cognitive, physical, and psychosocial deficits beyond discharge from traditional rehabilitation programs requiring sophisticated long-term vision beyond that of conventional medical models of “recovery” (Ylvisaker et al., 2002)

**Purpose Statement**

For the past thirteen years, I have been using a therapeutic dance/movement intervention with individuals with brain injuries. I wanted to provide a holistic approach integrating the physical, cognitive, and psychosocial components of one’s being to promote a sense of normalcy and harmony in one’s life. Through this bodily-kinesthetic approach, my hope was to improve individual’s overall quality of life and independent functioning while promoting a sense of empowerment and control over their lives.

My interest in a study about the dynamics of therapeutic dance/movement began as I questioned why a vast majority of the individuals with brain injuries who had participated in therapeutic dance/movement sessions reported benefits that extended beyond the classroom and into their every day lives. The types of benefits reported by the participants and their family members included increased body awareness, improved social competency and independent living skills, increased self concept, and improved quality of life. Although that was my original vision for developing this therapeutic intervention, I was not able to explain the dynamics taking place. I repeatedly wondered: What is going on during these therapeutic dance/movement sessions for participants and their family members to continue commenting on how beneficial it has been to them in so many ways that far exceeded other therapies?

The purpose of this qualitative study was to better understand the dynamics of a therapeutic dance/movement intervention specifically designed for individuals with brain injuries. To assist with this process, I systematically observed and analyzed my therapeutic dance/movement approach comparing it with that of physical therapy. It was not my intent to
conduct a comparative analysis between these two approaches, but to use physical therapy as a means by which to explore my therapeutic dance/movement intervention. I selected physical therapy as the foundation for exploration for the following reasons: it is one of the pioneering treatment interventions used in brain injury rehabilitation; it is movement based with kinesthetic components to it; and it has been established and respected within the brain injury rehabilitation field for over 40 years as a useful therapeutic modality. Such comparison allowed me to discover similarities and differences between the two approaches.

LMA was the analytic tool used to assist me with better understanding the dynamics of a dance/movement intervention for individuals with brain injuries. The theoretical framework for LMA is described in Chapter 2. Its use as an analytic tool is discussed in Chapter 3.

Main Research Questions

Research Question 1: What are the similarities and differences between the dynamics of physical therapy and therapeutic dance/movement as interventions for individuals with brain injuries?
Research Question 2: What are the dynamics of the therapeutic dance/movement intervention?

Summary

Brain injury is referred to as “the silent epidemic.” There are an estimated 5.3 million Americans living with permanent disabilities resulting from a brain injury. It is often stated by professionals in the field that the only “cure” for brain injury is prevention. Many lives have been saved through innovative medical technology. We need to ensure that the lives we have saved progress toward a productive and meaningful life. The cognitive, physical, and psychosocial changes which occur in an individual post brain injury are profound and life-long. Long-term brain injury treatment interventions are vital to the cognitive, physical, and psychosocial health and well being of these individuals. Developing and validating additional treatment modalities benefiting individuals with brain injuries (augmenting physical, occupational, and speech therapies), is essential to continue the progress that we desire individuals with disabilities to make in their lives post brain injury. We have an ethical responsibility to ensure this happens. This study is an effort towards that vision.
CHAPTER 2

LITERATURE REVIEW

This chapter focuses on a review of the literature related to my study which is to better understand the dynamics of a therapeutic dance/movement intervention specifically being used with individuals with brain injuries. The chapter begins with a historical background of brain injury and brain injury rehabilitation programs in the United States. The section includes definitions of traumatic and acquired brain injury, statistics regarding injury incidence and prevalence, the influence of physical therapy in general rehabilitation, an overview of brain injury rehabilitation therapies, and the need for more evidence based research to substantiate the efficacy of rehabilitation interventions. Mentioned also are weaknesses and inconsistencies in this growing field of brain injury rehabilitation which is partly attributed to the relative newness of the field, the differences within the demographics served, and the varying conceptual frameworks within which treatment interventions have been designed and implemented. Such concerns are relatively common in growing fields such as in brain injury rehabilitation. This relatively young field can be viewed as an invitation to systematically explore adjunct approaches to the long standing approaches of conventional physical, occupational, and speech therapy treatment modalities that have been commonly applied in brain injury rehabilitation. There appears to be room in this field for adjunct approaches to emerge that may assist individuals with brain injuries to live full and productive lives.

The second section discusses movement through a bodily kinesthetic approach. Discussions regarding the neurophysiology of movement and the interplay between the mind and body are provided, in addition to Gardner’s description of bodily kinesthetic intelligence. The section concludes with examples of learning from a bodily kinesthetic approach.

A third section in this chapter focuses on dance and movement as a specific bodily kinesthetic approach to learning with evidence for its use with individuals with brain injuries. The last section describes and discusses Laban Movement Analysis, a systematic approach to observing human movement, which is used as the analytic tool for this study.
Historical Background

History of Brain Injury

Traumatic brain injury, also synonymous with open head injury, penetrating head injury, head trauma, and brain injury, has evolved since World War I, as have the terms used to describe such an injury. Prior to this century, surviving from a traumatic brain injury was rare (Boake, 1989). The most recent statistics from the Centers for Disease Control and Prevention (1999) estimate there are more than 1 million Americans who are treated for all types of brain injuries in hospital emergency rooms across the country every year. A recent study estimated that the average combined cost of acute hospitalization and inpatient rehabilitation for individuals sustaining brain injuries was $151,152. per patient (Cifu, Krueetzer, Kolakowsky-Hayner, Marwitz, & Englander, 2003). In 1999, the CDC estimated that 5.3 million Americans were living with disabilities resulting from a brain injury. Individuals between the ages of 15 and 24 years have consistently had the highest rate of incidence for sustaining a brain injury (CDC, 2006; CDC, 1999; Kreutzer & Wehman, 1990). Additionally, males continue to be two to three times more likely to sustain a brain injury than females, and a significant percentage of individuals have a pre-injury history of substance abuse or have undergone some type of psychiatric care prior to injury (CDC, 1999; 1983). The leading causes of traumatic brain injury are from falls, motor vehicle crashes, and assaults, with gunshot wounds to the head on the rise within recent years (CDC, 1999; Kreutzer & Wehman, 1990). Nine out of 10 individuals with a firearm-related brain injury die and almost two-thirds of these types of injuries are classified as attempted suicide (CDC, 1999). The leading causes of acquired brain injury are from cardiovascular accidents (CVA), aneurysms, brain tumors, and anoxia. The changes that occur in individuals post-traumatic or acquired brain injury are often profound, with life-long disabling conditions that are life altering (Texas Traumatic Brain Injury Advisory Board, 1999). According to the CDC (1999), brain injury can result in long term or permanent physical, cognitive, and psychosocial deficits.

Prior to the first quarter of the century, accurate statistics were not documented regarding the mortality rate of individuals surviving from brain injuries in the United States. The military, however, maintained records for penetrating head injuries which “showed that before World War I, head wounds with dural penetration generally resulted in death, often as a result of infection” (Boake, 1989, p. 1). During World War I, more effective neurosurgical techniques were
developed within the United States which provided the creation of neurosurgery as a separate and distinct medical specialty. As a result, the mortality rate from penetrating head injuries within the military declined to 35% from a reported 60% to 70% creating a significant number of soldiers surviving head trauma (Boake, 1989). Medical care continued to improve as World War II brought the development of antibiotics, and more improved technology and techniques for reducing brain edema (Cohen & Reed, 1995). During this postwar era, more young men injured during the war survived from traumatic brain injuries, more persons who had strokes (acquired brain injury) survived, and more were living into old age. This prompted specialized rehabilitation efforts to develop which consisted of physical therapy, speech-language therapy, occupational therapy (which included crafts or academic studies), and vocational placement for war veterans.

The number of individuals surviving severe traumatic and acquired brain injuries has increased significantly since the 1970’s due to skilled emergency and medical technology, the introduction of medical helicopter evacuation, and the development of Trauma-I medical centers. These advances are a direct consequence of comparable techniques introduced during the Korean and Vietnam wars (Kruetzer & Wehman, 1990).

**History of Brain Injury Rehabilitation Programs**

Rehabilitation services were slow to develop during World War I due to their limited history of clinical neuroscience (Boake, 1989). Although military rehabilitation hospitals were proposed, they were not established due to conflicts between the orthopedic surgeons and vocational educators, they were not established. The surgeons recommended that all therapies including vocational education be included under the medical control. Vocational professionals successfully advocated against this plan to protect their professional autonomy (p. 3). Consequently, a specialized hospital system was not created and “rehabilitation was provided through sections of designated military general hospitals. The facilities providing rehabilitation were sometimes far from optimal” (p. 3). A general and common sense rehabilitation approach was used in the U.S. during this period emphasizing morale building and return to work. This was due to the unsuccessful attempt to develop a specialized brain injury system for their soldiers (Boake, 1989).

In 1916, physical therapy began to develop as a rehabilitation field. Mary McMillan, a progressive-minded woman was asked by the U.S. Army Surgeon General to assist American
soldiers injured in World War I by providing physical therapeutics (Murphy, 1995). Her training included work in massage, therapeutic exercise, electrotherapy, anatomy, and pre-medical courses. She trained more than 200 women to assist her in working with injured soldiers. After the war ended, general rehabilitation hospitals closed, however McMillan was determined to keep physical therapeutics alive and growing. She founded the American Physical Therapy Association in 1921. Since that time, according to Murphy, the physical therapy profession has grown into one of the largest and most significant health care organizations in the United States, it has developed into one of the primary components of rehabilitation and preventive health care, and it is one of the main therapeutic modalities used in brain injury rehabilitation (Murphy, 1995). Because of its long-standing history and kinesthetic components, I have selected physical therapy as a means for comparing a therapeutic dance/movement intervention, a relatively new approach, to discover similarities and differences in approaches.

Brain injury rehabilitation began again during World War II. Specialized brain injury centers were established in the United States as well as in other industrialized countries involved in the war (Boake, 1989). During 1943 a speech disorders unit was established in conjunction with a neurosurgical center in Texas. By 1945, there were approximately 13 speech disorder units which included physical therapy, speech-language therapy, vocational training, and psychotherapy (Boake, 1989). The major influence of physical rehabilitation during this time period developed from orthopedic models based on physical therapy and its long-standing history in general rehabilitation (Cohen & Reed, 1995).

After World War II, most of the rehabilitation centers closed. Although there was continued interest in general rehabilitation, specific interest in brain injury rehabilitation faded in the United States after the 1940s. The first significant postwar book about brain injury rehabilitation was published in 1969 from the proceedings of an international conference co-sponsored by the World Federation of Neurology and the World Federation of Neurosurgical Societies (Boake, 1989). In 1971, a second international conference was held with the proceedings published in 1972 in the Scandinavian Journal of Rehabilitation Medicine. These developments reflected the increased number of individuals who sustained brain injuries, especially as a result of motor vehicle accidents (Boake, 1989). In the 1970s, the number of individuals surviving traumatic brain injuries from car accidents, and acquired brain injuries as a result of strokes, brain tumors, and aneurysms increased significantly. There was again a great
need for acute brain injury rehabilitation. Specialized rehabilitation units were established similar to the models used in spinal cord injury rehabilitation. One of the first acute brain injury units was the Rancho Los Amigos Hospital near Los Angeles, CA. This program developed the cognitive rehabilitation protocols for therapy with patients at differing levels of recovery that are standard for many centers in the United States today.

Although many of the severely brain injured individuals were treated in these programs, only a small percentage of these participants successfully reintegrated into the community after discharge (Boake, 1989). This dilemma became especially critical in Israel due to increased numbers of brain injured veterans after the 1973 Yom Kippur War. As a result of this concern, a joint day treatment rehabilitation program was established in 1975 in Tel Aviv by the Rehabilitation Department of the Israeli Ministry of Defense and the New York University Institute of Rehabilitation Medicine. This was a historical day program developed by neuropsychologists Yehuda Ben-Yishey and Leonard Diller as it was one of the first to focus on survivors’ cognitive and behavioral disabilities (Boake, 1989). Yishey established a day program at the New York University in 1978. Similar programs were developed later throughout the United States as did residential treatment programs for post acute brain injury survivors.

During the 1970s, many individuals were “increasingly denied opportunities for rehabilitation and were placed in nursing homes or mental hospitals, or discharged home to the care of their relatives, with little or no community support” (Burke, 1995, p. 736). A major change in brain injury rehabilitation commenced in the 1980s, focusing on models of specialized programs rather than general or geriatric rehabilitation programs (Burke, 1995). These programs included a similar treatment approach of Yishey’s brain injury rehabilitation day programs. The number of specialized rehabilitation programs grew significantly during the 1980s. Beginning in the 1990s, it became more difficult for individuals to remain in in-patient acute and post acute brain injury rehabilitation programs for an extended period of time due to the advent of managed care. Rosenthal (1996) talked about the state of brain injury rehabilitation that continues to evolve today, in an article from his 1995 Sheldon Berrol, M.D. Senior Lectorship:

The modern age of brain injury rehabilitation has experienced rapid growth as it has moved from the era of enlightenment to the era of consolidation during the past two decades. This growth has been characterized by a proliferation of specialized programs, development of innovative treatment methods, and an expansion of the care continuum.
Unfortunately, the scientific foundation for much of commonly accepted practice has not kept pace with these developments. As practitioners attempt to deliver high-quality care under the new cost-reduction philosophy of managed care, there is a need to systematically develop and utilize outcome measurement systems that evaluate the efficacy of our brain injury rehabilitation programs. Outcome measurement in this rehabilitation must meet the need of a diverse set of customers. It is critical to fully evaluate the physical, neuropsychological, and psychosocial consequences of traumatic brain injury and determine which treatment methods are most effective in ameliorating these problems and result in optimal long-term outcome. Meaningful measurement systems will need to address customer satisfaction, long-term outcome, quality of life, and cost-effectiveness. (pp. 88-89)

Similar findings on the evidence of the effectiveness of rehabilitation for adults with brain injury were reported in a summary statement by Chestnut et al. (1999):

To determine the effectiveness of rehabilitation interventions for persons with traumatic brain injury, a commitment must be made to population-based studies, strong controlled research design, standardization of measures, adequate statistical analysis, and specification of health outcome of importance to persons with TBI and their families. (p. 177)

The CDC Report to Congress (1999) advocated for research activities to improve brain injury rehabilitation and to develop interventions that promote independence and community integration for individuals living with the effects of brain injury. The need for better information on the nature and scope of the cognitive, physical, and psychosocial disabilities associated with brain injury is imperative to help provide effective rehabilitation treatment methods and services.

Rice-Oxley and Turner-Stokes (1999) also discuss the effectiveness of brain injury rehabilitation:

We have progressed to a stage where the weight of evidence supports the notion that rehabilitation is effective…It is time now to unravel the threads of rehabilitation and consider which are the critical components. There are still many opportunities for comparison of different models for delivery of care. (p. 7)
Weaknesses and inconsistencies exist in this growing field of brain injury rehabilitation (van den Broek, 2005; Ylvisaker et al., 2002). This is partly attributed to the relative youth of the field, the heterogeneity of the population of people with cognitive, physical and psychosocial impairment, and the varying conceptual frameworks within which treatment interventions have been designed and implemented (Ylvisaker et al., 2002). Ylvisaker et al. (2002) state that the “lack of support for an intervention does not constitute sufficient evidence to invalidate the approach” (p. 191).

In summarizing the status of brain injury rehabilitation, Hammond (2003) states:
Over the recent years, great strides have been made in improving emergency, acute rehabilitation, and community care. We have furthered our understanding of the pathophysiology of traumatic brain injury. Neuroimaging capability has advanced our capacity to determine the brain’s response to therapies. The available pharmaceutical agents have broadened. Studies in stroke point to motor recovery in chronic stroke. However, our patients with residual impairments teach us that we are only partly down this road of optimizing care. Thankfully, we often observe “remarkable recoveries” both early after injury and as time passes after injury. It is unclear who will recover and what is attributable to such changes. It is also not clear how to best promote such gains. There is a pressing need to determine effective methods to promote recovery after brain injury. (p. 306)

Van den Broek (2005) addresses the issue of limited benefit, generalization, and maintenance of improvement after neurorehabilitation and suggests that there may be a disparity between what the individual with a brain injury wants and what the therapist wants for the individual during treatment (van den Broek, 2005). Van den Broek posits:
“In some instances, the origins of ineffective treatment may lie in a fundamental incongruity between the priorities of patients and those who provide rehabilitation and the manner in which rehabilitation professionals engage with their patients” (p. 464). He further states that these differences can occur when therapists unconsciously fall into the “expert trap” and assume to be the expert on what an individual needs without their input. The therapist takes the medical model approach of prescribing an intervention based on what he/she believes to be what is needed.
Mateer, Sira, & O’Connell, (2005) raise the issue of integrating cognitive and emotional intervention strategies by stating:

Professionals working in neuro-rehabilitation widely acknowledge that it is important to treat the “person with a brain injury,” rather than merely treating the “brain injury” and ignoring the person. Unfortunately, explicit approaches to achieving the goal of treating the person with an injury wholly, and research of the potential interaction between differently focused interventions, are presently lacking. (pp. 62-66)

Movement to Facilitate Awareness and Development

Movement is coordinated by the cerebellum (the so called “reptilian brain”) and the body (Cotterill, 2001). This is also referred to as brain-muscle communication. Physiology is now concerned with understanding the interaction between the primal, emotional, and rational brain and its interplay with movement behavior (Bartenieff, 1974). Cotterill (2001), a physiologist, believes that “movement is the sole means by which any creature can actively secure the wherewithal for its survival” and that “…all creatures, great and small, have only ever had to remember one thing, how to move under the prevailing circumstances in their environments and within their own bodies” (p. 2).

Sperry (1963), cited in Cotterill’s article, speaks about the need to integrate the way we think about the brain and our ability to move:

An analysis of our current thinking will show that it tends to suffer generally from a failure to view mental activities in their proper relation, or even in any relation, to motor behavior. The remedy lies in further insight into the relationship between the sensory-associative functions of the brain on the one hand and its motor activity on the other. In order to achieve this insight, our present one-sided preoccupation with the sensory avenues to the study of mental processes will need to be supplemented by increased attention to the motor patterns, and especially to what can be inferred from these regarding the nature of the associative and sensory functions. In a machine, the output is usually more revealing of the internal organization than is the input. (p. 2)

Cotterill’s article illustrates the significant interplay between the brain (mind) and the body. He suggests a direct approach of defining cognition which enables an animal to acquire
novel context-specific reflexes. In another context, Cotterill describes a very interesting investigation on the honeybee and its purposeful movement patterns:

The honeybee can reliably measure the distance to a source of nutrient, and pass on this information to its hive-mates, by means of its waggle dance. Von Frisch (1993) believed that the distance was measured in terms of the absolute energy consumption, but Srinivasan et al. (2000) have demonstrated that the bee actually gauges the amount of visual variation experienced during the successful forage, and uses this as the indicator of distance traveled. So here too we find movement acting as the stimulus, while the environmental feedback is the pertinent response. And it is difficult to imagine the honeybee being capable of its waggle dance if it could not draw upon the motor-sequencing capability provided by the premotor region. (p. 7)

Suppose the honeybee’s movement behavior were replaced by a human in the above situation. It seems reasonable that humans, like honey bees, may be able to learn functional activities through movement as their primary mode of learning.

On a kinesthetic level, the honeybee performed a functional skill by informing other honeybees in an effective and efficient manner. Howard Gardner’s (1985) theory of multiple intelligences lists bodily kinesthetic as one of the seven intelligences. He states that it is “manifest in the ability to use one’s body as highly differentiated and in skilled ways for expressive and goal directed purposes” (p. 206). He continues by stating “skilled performance must all the time submit to receptor control, and must be initiated and directed by signals which the performer must pick up from his environment, in combination with other signals, internal to his own body, which tell him about his own movements as he makes them” (p. 208). Gardner refers to bodily kinesthetic as a type of intelligence whereas in this study, I am using the term bodily kinesthetic as a primary approach to learning skills rather than as an intelligence.

Peggy Hackney (1988), certified movement analyst, writes about the power of kinesthetic learning and observes that “mental activity can be seen as a means for not only executing actions but also bringing to it additional refinement and greater adaptiveness and survival value” (p. 32).

**Dance/Movement as an Integrative Rehabilitation Intervention**

In teaching dance and movement, kinesthetics is important as a learning modality. Bodily kinesthetic learning is also known in some sense to be developmentally more basic and central to
life than other inroads and it can be trained (Hackney, 1988). Our culture does not use movement as a common method for learning. Hackney states “we more think of our bodies as machines. We are integrated moving beings, constantly revealing ourselves in movement, and that paying attention to movement will uncover knowledge” (p. 27). We need to be more fully integrated with mind and body. Hanna (2000) observes that “our society tends to distrust the body. We measure knowledge in words and numbers. …However, we now know about the integration of mind and body” (p. 26).

Evidence exists that the mind and body are interconnected and communicate together to form a unified integrative self (Cotterill, 2001). Evidence also suggests there is a direct approach to defining cognition that enables one to acquire novel context-specific reflexes (Cotterill, 2001). This could be interpreted as the acquisition of skills through learning (context-specific) movement patterns such as dance. It is suggested by Sperry (1963) that individuals become more insightful into the relationship between the sensory-associative functions of the brain and its motor activity. In order to accomplish this, we must integrate the mind and body. I suggest that a deeper sense of learning and self discovery through brain-muscle communication can occur by learning through movement; through dance and movement.

Dance and movement also adds creative and expressive components in its treatment process that other conventional modalities lack (North, 1995). This intervention challenges the imagination and is more conducive to learning through bodily experiences than are movements exclusively focused on functional goals such as strengthening muscles or mobility training (Hecox, Levine, & Scott, 1976). Movement education is process-oriented rather than goal-oriented and is about the use of the whole body and the individual as functional and expressive (Woodruff, 1989).

Two seminal articles on incorporating dance/movement in brain injury rehabilitation were found through my extensive literature review. These articles provided case studies where individuals with brain injuries received dance/movement therapy as part of their overall post acute day treatment program. Berrol and Katz (1985) authored the first article which described the pathological consequences of brain injury, the mechanics of recovery, and therapeutic considerations when providing dance/movement therapy to individuals with brain trauma. The remainder of the article presented case studies of individuals participating in individual therapy and group therapy. In conclusion, the authors suggest that dance/movement therapists working in
brain injury rehabilitation require additional training which is not included in conventional
dance/movement therapy education. Additionally, they suggest that “as the parameters of
dance/movement therapy are expanded, much research is needed to validate what is done.
Movement assessments used with psychiatric populations may not be appropriate for
rehabilitation populations” (pp. 65-66).

The second article by Berrol (1990) was based on a single case study of an individual
with a brain injury. Individual dance/movement therapy sessions were provided to this individual
for an unspecified period while participating in a day treatment rehabilitation program in Canada.
The article provided a descriptive narrative regarding the therapeutic process with the individual
during the dance/movement sessions. The method section stated that change had occurred in the
individual’s behavior resulting from the dance/movement sessions as reported through
rehabilitation staff observations. For example, the individual’s posture was improved and the
individual seemed more confident and not as easily frustrated. Although there was no additional
data collection or data analysis, the staff psychologist noted that “an observable change had
occurred, conceded that in L. G.’s case, the movement experiences had been a catalyst for his
psychological and cognitive improvement that his physical being appeared to affect his psychic
state” (p. 263). Berrol concluded that dance/movement can be “conceived as a holistic process in
which movement is a catalyst for positive change” (p. 264).

Berrol discussed the rationale and implications for using dance/movement as a brain
injury rehabilitation treatment intervention based on neurophysiological literature. Additional
questions arise: What specific elements within the dance/movement sessions accounted for this
change that occurred, and over what period of time? Were controls in place to ensure that the
reported change was independent of other potential confounding variables such as the
individual’s concurrent involvement in weekly physical and occupational therapy and
counseling? What were the dynamics of these sessions?

In corresponding with Berrol, it was noted that she was not aware of additional articles
published regarding the further use of therapeutic dance/movement within the brain injury
rehabilitation field. There is a significant need for research to be conducted to discern the
dynamics of this type of intervention and to validate the use of and benefits from
dance/movement therapy specifically designed for individuals with brain injuries. There is
substantial evidence to support the argument that the mind and body are connected and that
movement increases bodily kinesthetic, proprioceptive, tactile, and vestibular reception. These fundamental sensory-motor functions are critical to the physical, cognitive, and psychosocial restructuring and integration when a brain injury occurs. Our whole being which includes our physical, cognitive, and psychosocial framework affect each other, regardless of the circumstance; whether normal or pathological (Berrol, 1990). In Berrol’s 1990 article, she refers to Piaget and Inhelder (1969), whom she quotes as stating, “we learn about ourselves and the world around us through our bodies” (p. 260). Could a therapeutic dance/movement intervention for individuals with brain injuries that involves the mind and body as a whole and does not separate the physical, cognitive, and psychosocial domains but rather incorporates all these within one therapeutic modality be the missing link in brain injury rehabilitation?

The innate ability of movement to assist and augment the mind-body connection presents a compelling tool for therapeutic inclusion. Dance/movement can assist in the retraining of lower order nervous system functions and their re-integration with higher order cognitive processes (Berrol, 1990).

The next step is to systematically understand the dynamics of a therapeutic dance/movement intervention specifically designed for individuals with brain injuries. This study serves as a foundation for future research in this area and needs to occur before attempting to investigate the potential efficacy of a therapeutic dance/movement intervention as an adjunct therapeutic modality in brain injury rehabilitation.

**Laban Movement Analysis**

Laban Movement Analysis (LMA) includes the categories and components of Body, Effort, Shape, and Space, Bartenieff Fundamentals™ (BF), and Movement Themes. LMA originated from Rudolf Laban’s pioneering work in movement research. Laban, born in Austria in 1879, was an artist, dancer, choreographer, and scientist who examined basic theories and principles of form, sequence, and dynamics in human movement. Around 1900, he began studying individual’s movement patterns while performing everyday life and work related activities. He interpreted movement by breaking down the elements of movement and documenting their pathways (Laban & Ullman, 1966). He questioned why certain movement sequences formed similar patterns in the body and inquired about their specific purpose. Laban believed that movement of the body and mind was the basis of all human activity and that all movement was purposeful with meaning and function (Hodgson, 2001).
In the mid-1900s Laban, with the help of his colleagues, developed the theory and practice of LMA, a systematic approach to observing, describing, and analyzing quantitative and qualitative changes in human movement through Body, Effort, Space, and Shape (BESS) (Bartenieff & Lewis, 1980). Since Laban’s death in 1958, his students have continued to develop and expand upon the system. Through terminology and corresponding symbols, LMA provides a comprehensive language and analytic framework for the description and recording of human movement (Laban Institute of Movement Studies [LIMS], 2003; Freire, 2001). In the book Body movement: Coping with the environment, Bartenieff and Lewis (1980) describe LMA as:

A means of perceiving and a vocabulary for describing movement – quantitatively and qualitatively – that is applicable to any body movement research even when there may be differences in interpretation of function and communication. It makes subtle distinctions among a great range of specific components and component constellations inherent in movement process … Laban’s multifaceted approach to the study of human behavior through body movement has a unique contribution to make to the understanding of our world. (p.viii)

The LMA system resonates with those who use the method as a tool for teaching, observing, and analyzing human movement as Davis (1990) contends.

In contrast, the terms of kinesiology, for example, are limited to simple joint actions or muscle activity which is not experienced as it is physiologically analyzed. The complementing system of LMA seems to do justice to the experience of movement because the system is not only thorough but comprehensive – it speaks to the nature of movement as experienced. (p. 20)

Bartenieff Fundamentals™ (BF) is an expansion of the Body component of BESS. BF was developed by Irmgard Bartenieff, a student of Laban’s, and is described as “the set of concepts, principles, and exercises in applying Laban’s movement theory to the physical/kinesiological functioning of the human body” (LIMS, 2003). Bartenieff (1900 – 1981) studied and trained with Laban and his colleagues in the 1920s in Germany. In 1936, she moved to the United States where she became a physical therapist and continued her dance and art career. She developed techniques in neurological and orthopedic pathologies based on anatomical and LMA concepts while working in hospitals especially with polio patients. In the
1970s, Bartenieff engaged in training, research, and the development of a method for teaching LMA specifically in the area of Body within BESS (Bartenieff & Lewis, 1980). In 1978, Bartenieff, with the assistance of other colleagues, founded the Laban Institute for Movement Studies in New York. It is now called the Laban/Bartenieff Institute for Movement Studies (LIMS). LIMS offers a certification program to become a certified movement analyst.

Through the use of LMA, a Certified Movement Analyst (CMA) systematically describes the actions of one’s body, how it moves, how it relates to space, and how the quality of one’s movement affects function and communication in coping with one’s environment (Bartenieff & Lewis, 1980). There is meaning to movement and the CMA can assist individuals in the understanding, meaning, and purpose of one’s movement and patterns and facilitate change or expansion of movement and patterns.

LMA is a well established system in which to observe, describe, and analyze all forms of movement that is universal (Schwartz, 1995; Hodgson, 2001). It is a “dynamic and evolving set of principles which provides a language with which to describe and direct movement experiences and focuses attention on dynamics of movement, spatial range, and principles of physical development and coordination” (Schwartz, 1995, p. 25). LMA has been used in a multitude of settings with diverse applications. For example, LMA was used as an analytic tool in a research project on the postmodern feminist of gender in undergraduate educational gymnastics sequences (Nilges, 1999). Other examples where LMA demonstrates its use include: a study to support the development of roughness in the play fighting of rats using LMA (Foroud & Pellis, 2003); computer animation research incorporating Effort and Shape (Chi et al., 2000), teaching tai chi (Schwartz, 1995); working with children (Schwartz, 1993); teaching warm-ups (Lauffenburger, 1992); teaching special education children through movement education (Sherborne, 1969, 1990; Bainbridge-Cohen, 1997); and working with athletes (Schwartz, 1995). Other settings where LMA is applied include learning skills such as ice skating and teaching actors and politicians how to portray themselves in a certain manner. These examples illustrate but a few of the many broad uses in which LMA has been applied. Schwartz (1995) summarizes LMA by stating, It is a complex, sophisticated, highly developed, and continually evolving body of material. LMA provides an objective language for describing movement, tools for developing and analyzing programs, and an approach to understanding the body. LMA
can be used at different levels of understanding and applied in many cultural contexts across many disciplines. (p. 25)

As an analytic tool for my qualitative study, LMA provided me with a clear method for systematically observing, describing, and analyzing movement to explore the dynamics of a therapeutic dance/movement intervention used with individuals with brain injuries.

LMA terminology is capitalized to indicate when its specific language is being used. *Body* describes the action of the torso and limbs by observing body attitude, whole body and body part movement, and developmental patterns. *Effort* describes how the body concentrates its exertion as the body changes in its quality of movement through Time, Weight, Space, and Flow. *Shape* describes the movement of the body’s internal components in supporting or influencing external activity such as with one’s inner architecture, shape flow, directional movements, and shaping qualities. *Space* describes the location, amount and symmetry of the external space one uses during movement which includes space harmony, one’s outer architecture, and one’s kinesphere. Bartenieff Fundamentals™ (BF) focuses on movement integration and harmony and is an expansion of the Body component of BESS. BF principles relate to the internal support of the body to facilitate functional and efficient movement experiences. Bartenieff developed a series of exercises that relate to the BF principles to assist one’s body-mind organization, function, and expression. Bartenieff saw these exercises as the foundation for all human movement (Woodruff, 1989). Movement themes are overarching concepts within BESS and BF. Themes include Inner/Outer, Function/Expression, Mobility/Stability, Exertion/Recuperation, and Whole/Part.

It is important to realize that these concepts within LMA are all interrelated with one another and with one’s every day movement experience. A more detailed description of LMA is described in Chapter 3. LMA terminology with corresponding symbols are located in Appendix A.

**Summary**

Brain injury is a growing concern in the United States. An estimated 5.3 million individuals are currently living with disabilities resulting from a brain injury with an estimated 1 million Americans treated for brain injuries in hospital emergency rooms across the country every year (CDC, 1999). Medical treatment and in-patient rehabilitation are costly with the
estimated average cost being $151,152.00 per individual, and there is no “cure” for such an injury. As a result, brain injury rehabilitation services are vital to the functioning and improvement of individuals with brain injuries in order to live as independently and productively as possible with a good quality of life.

The long-standing rehabilitation services first introduced into brain injury rehabilitation include physical, occupational, and speech therapy. These therapeutic modalities are still in use and are attempting to fill a multitude of needs for consumers who have long term needs due to physical, cognitive, and psychosocial deficits as a result of their injury. Due to the relative newness of the field, evidence of efficacy with these long-standing treatment modalities is lagging.

There appears to be room in this field for adjunct treatment modalities to be systematically explored with the potential to assist individuals with brain injuries to live as fully functioning and productive lives as possible; while compensating for their physical, cognitive, or psychosocial deficits. Before another treatment modality can be implemented into the brain injury rehabilitation field, it needs to be better understood. I have provided a rationale to support the need to explore the dynamics of a therapeutic dance/movement intervention as a primary method of learning through a bodily kinesthetic approach. The purpose of my study is to better understand the dynamics of a therapeutic dance/movement intervention designed for individuals with brain injuries.
CHAPTER 3

RESEARCH METHODS

Introduction

This chapter provides a review of my research methods. The purpose of the qualitative study was to better understand the dynamics of a therapeutic dance/movement intervention for individuals with brain injuries by comparing it to conventional physical therapy. Physical therapy, given its longevity in providing rehabilitative intervention for individuals with brain injuries, afforded a means by which to more systematically explore therapeutic dance/movement intervention. To assist with this process, I collected data from five individuals with brain injuries as they participated in five weekly therapeutic dance/movement sessions and physical therapy sessions.

I employed a collective case study design by selecting five individuals with brain injuries who participated in therapeutic dance/movement sessions through the National Rehabilitation & Rediscovery Foundation (NRRF). These individuals presented with characteristics that are typical of individuals who have sustained a brain injury exhibiting a range of cognitive, physical, and psychosocial deficits. Data from multiple sources of information were collected and analyzed including documentation of brain injury, medical and rehabilitation treatment history, interviews, observations, and videotapes, as discussed later in the chapter.

Laban Movement Analysis (LMA) was used as the analytic tool to collect and analyze data and describe my findings for the purpose of elucidating similarities and differences between the two interventions in relation to the five case studies. A detailed description of LMA and its components of Body, Effort, Space and Shape (BESS), Bartenieff Fundamentals (BF), and Movement Themes are discussed at the end of the chapter. Please refer to Appendix A for a review of LMA terms and their corresponding symbols when applicable.

The study was approved through the Institutional Review Board (IRB) at the Virginia Polytechnic Institute and State University. Please refer to Appendix B for a copy of the approval letter.
Participants

Participants in the study included (a) individuals with brain injuries referred to as clients or case studies (b) a physical therapist, and (c) a movement therapist (the researcher).

Clients

The five clients were selected from two groups of individuals who were participating in therapeutic dance/movement sessions through the National Rehabilitation & Rediscovery Foundation (NRRF). Selection was based upon their volunteering to participate in the study. I selected the first five individuals who volunteered to participate. The classes were held in community recreation centers in Northern Virginia. Clients ranged in age from 18 to 59 with a documented primary diagnosis of a traumatic or acquired brain injury. Years since injury ranged from two years to fifteen years. Traumatic brain injury types included those individuals involved in falls and firearm incidences. Acquired brain injury types included those individuals recovering from a stroke or brain tumor. Clients presented with characteristics that are typical of those who have sustained a brain injury exhibiting a range of cognitive, physical, and psychosocial deficits.
Selection criteria included the following:

- individuals who were participating in or who were willing to participate in therapeutic dance/movement sessions offered through NRRF and who were willing to participate in 5 weeks of physical therapy sessions for this study
- individuals who demonstrated a willingness to participate in the study by signing an agreement and informed consent form
- individuals who had a documented primary diagnosis of a moderate to severe brain injury (either acquired or traumatic) as documented in the medical records
- individuals who experienced a range of cognitive, physical, and/or psychosocial deficits due to their brain injury and who expressed (whether verbally or non-verbally depending upon communication ability) a desire to improve in one or more of these areas

Clients family members or close associations were interviewed to assist with supplementing and augmenting client information used to develop the narrative case descriptions. I also conversed with them weekly during the videotaping process regarding feedback they wished to provide. I used open-ended dialogue allowing family members and close associations to provide comments or ask questions regarding the study if they so desired.

**Physical Therapist**

Upon agreement to participate in the study, I scheduled an interview to ensure an appropriate fit for the study. During the interview, I gathered information regarding the physical therapist’s experience and interest in the study through a structured interview process with closed and open ended items, a copy of which is in Appendix C. It was evident that after several telephone conversations and interviews with other physical therapists over a years time, this physical therapist met the criteria for the study, was willing and available to participate in the study, and displayed a sincere interest in the study’s topic.

I selected a physical therapist for the study based on the following criteria:

- Licensed as a Registered Physical Therapist
- Demonstrated experience working with individuals with brain injuries
- Philosophy of using holistic treatment approach
• Willingness to provide five weekly individual physical therapy (PT) sessions to the five individuals within the study
• Good inter-personal skills and a commitment to providing high quality services to individuals in need of services

Certification as a neurologic specialist (NCS) was also initially one of my criteria, however physical therapists with whom I spoke stated that as long as the physical therapist had knowledge and experience of working with individuals with brain injuries and that the clients to be treated were at least two years post injury it was not of significance for the physical therapist to be NCS certified. As a result, since the clients in the study were at least two years post injury, I omitted this need for specialized certification from the list of criteria while at the same time ensured that the clients would be receiving services from a physical therapist with neurological experience.

The selected physical therapist is licensed as a Registered Physical Therapist who specializes in providing therapy services focusing on maximizing functional enhancement and injury prevention. She had the academic and clinical experience necessary for this study and was therefore enthusiastic and confident with her skills and abilities to take part in this study. Her treatment philosophy is to strive to empower individuals to improve their quality of life with personalized treatment, individualized client education, and quality care. She has a Master of Health Sciences in physical therapy from the University of Indianapolis, a Bachelor of Science in physical therapy from the University of Bombay in India, and thirteen years of experience as a physical therapist in clinical and home-health care settings. The physical therapist received a “Key to Quality Services” award for outstanding service and commitment to clients and is an active member of the American Physical Therapy Association (APTA). The physical therapist currently has a clinic based practice which was where the clients in the study received their physical therapy sessions.

Movement Therapist

The candidate, Marianne Talbot, is a Certified Movement Analyst (CMA) through the Laban/Bartenieff Institute of Movement Studies. Other credentials include certifications as a Rehabilitation Counselor (CRC), Case Manager (CCM), and Rehabilitation Provider (CRP). I earned a Master of Arts in Education and Human Development from the George Washington University in Washington, DC and conducted my internship at the National Institutes of Health
in the clinical neuropsychology section. I have 20 years experience working with individuals with brain injuries in the area of rehabilitation, thirteen of which have been devoted to rehabilitation and dance/movement.

My 25 years of dance experience include the following: participation in dance companies in St. Petersburg and Tampa, Florida, and Washington, DC; participation in master classes at American University, New York University, and Sweet Briar College in addition to other professional classes and workshops throughout the Washington, D.C. metropolitan area. Teaching experience includes instructor in ballet, jazz, creative movement, and modern dance in St. Petersburg and Tampa, Florida, and in Northern Virginia. I have designed and taught therapeutic dance/movement classes for individuals with brain injuries for 12 years and established the Rhythms of Hope Dance Company which consists of individuals with brain injuries and other neurological disabilities. Through my education, experience in brain injury rehabilitation, dance, and movement analysis, I developed a therapeutic dance/movement intervention for individuals with brain injuries to assist with learning skills and developing a new sense of self post injury.

My philosophy is similar to that of the selected physical therapist, which is to strive to empower individuals and challenge them to rediscover themselves and their life’s potential by maximizing their cognitive, physical, and psychosocial independence.

**Data Sources and Procedures**

For purposes of explanation, I have separated the data sources and procedures and analysis section, realizing that in qualitative research, much of the data collection and analysis are conducted simultaneously.

Data were collected by multiple means (documents, interviews, direct observation, videotapes, coding sheets). Below are provided a list of data collected for each participant including the client’s family members.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Source</th>
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| Clients      | Clients 1-5 (See Appendix E) provided information on medical and psychosocial history  
               All therapeutic intervention sessions were videotaped  
               Direct observations and memoing captured after review of videotapes  
               LMA Coding Sheets completed |
Family Members
Interview and informal conversations (notes taken) augmented information regarding client’s medical and psychosocial history

Physical Therapist
Interview and Discussion – both to select physical therapist and to better understand observations made during sessions
All sessions were videotaped
LMA Coding Sheets completed

Movement Therapist
All sessions were videotaped
LMA Coding Sheets completed

Due to client comfort level, I videotaped the PT and therapeutic dance/movement sessions by setting up the video camera on a tripod where the therapy sessions took place and when needed, re-adjusted the camera to ensure I was capturing the individuals during the sessions. When I asked the clients as to whether they would be comfortable with me or with another person videotaping the sessions, they unanimously preferred to have me videotape rather than a person they did not know ‘watching them’, as they stated.

Clients
The five clients within the study were selected according to the selection criteria mentioned above. Upon client selection, I developed an Informed Consent Form (see Appendix D) in accordance with the IRB criteria and reviewed it with each clients and his/her family members or close associations. Upon agreement, clients or their legal guardians signed and returned the form. I completed the Client Assessment Form by interviewing clients and their family members or close associations individually. Please refer to Appendix E for a copy of the Assessment Form.

Demographic items gleaned from the Client Assessment Form and interviews with family members and close associations contained information related to the client’s injury, medical and rehabilitation following injury, current participation in therapies - frequency and duration, current medications, age, and date of injury. Psychosocial history questions included physical and mental health pre and post injury, independent living, employment, and substance abuse, marital, family, and financial status. The structured interviews with closed-ended items formed provided this information. Client’s names were altered through the use of pseudonyms to ensure
client confidentiality. Other identifying information was also altered to protect each client’s identity.

Upon completion of the client assessments and physical therapy selection process, I coordinated the physical therapy sessions with the clients and physical therapist over a five week period. Clients were videotaped during five physical therapy and five therapeutic dance/movement sessions within the same time frame. Each client received one physical therapy session and one therapeutic dance/movement session per week for five weeks. The entire sessions were videotaped which provided information regarding the whole group process as well as individual case data. The client’s role was to participate in the therapeutic dance/movement and physical therapy sessions as s/he normally would for his/her own individual benefit.

**Physical Therapist**

I received her available schedule and the client’s available schedule, and coordinated each client’s physical therapy sessions, developed the five week schedule in a written format, and provided the information to the physical therapist and the clients and family members or close associations. This information also contained the physical therapist’s contact information, my contact information, driving directions, and the therapeutic dance/movement class schedule.

After each PT session, I met with the physical therapist for discussion regarding feedback or questions she or I may have had regarding the clients. During this time, we also engaged in dialogue about the field of physical therapy and rehabilitation. Depending upon the physical therapist’s time, we would meet ranging from 10 to 20 minutes after each of her sessions.

Upon completion of the five week physical therapy sessions, I invited the physical therapist to review and provide feedback regarding the videotaped physical therapy sessions and discuss my preliminary observations and analysis. Due to her limited time, she was unavailable to participate in that process.

The role of the physical therapist was to provide five physical therapy sessions to the five selected clients one time per week for five weeks and to meet with me during this time frame in-between client sessions for discussion regarding clients, questions, and feedback regarding the process.
**Movement Therapist**

The movement therapist, who in this study is me, served several roles. In addition to coordinating and carrying out all aspects of the study mentioned within this chapter, I acted as the videographer for all the sessions, was a participant observer during the therapeutic dance/movement sessions, a non-participant observer during the physical therapy sessions.

**Data Analysis**

I developed a three-ring binder containing each client’s assessment form, medical and rehabilitation documentation, notes from family members and close associations, field notes and memoing, coding sheets, and consent form. I proceeded to shape the case narratives through the information received from the client assessment forms and discussions with clients, family members, and close associations. The PT interview questions provided me with information describing the physical therapist’s education, experience, and knowledge.

The process of reviewing and analyzing the videotapes through LMA was the central focus of the research. Comparable methods are used by other Certified Movement Analyst’s (CMA) when conducting behavioral research studies. The process entailed reviewing each videotape after each session and recording my initial observations in memo form. Each videotape was labeled with the intervention type (PT or dance/movement) and date and contained in a secure location. After completing all the videotaped sessions, I separated the videotapes into two categories - physical therapy sessions and dance/movement sessions, and then by client, in chronological order. I proceeded to systematically review each client’s videotaped sessions (1-5) multiple times for a sense of the whole. I reviewed each client’s PT sessions followed by their dance/movement sessions and recorded observations in memo form as performed during the initial videotape viewings. Please refer to Appendix F for a memoing sample describing the intervention sessions for one client.

After my observations were recorded for each client, I consulted with another CMA for objective verification and quality check of the videotaped data. The process necessitated that both the CMA and I review the videotapes together to gain a sense of the whole, identify and record the significant LMA features of each participant within the whole context of each intervention, and consolidate the videotapes to create 25 minute video clips of each client during both interventions: PT and therapeutic dance/movement. The consolidated video clips consisted of the significant LMA features of each participant representing each participant’s patterns and
themes consistently seen during each intervention. To provide a systematic method for recording observations, the CMA and I developed a LMA/BESS Coding Sheet, seen in Appendix G. We then methodically reviewed each video clip, client by client, beginning with the PT sessions followed by the dance/movement sessions and recorded our observations for each client and therapist using the Coding Sheet. The CMA and I discussed our recorded findings after reviewing each client video clip before proceeding to the next client. The same procedure was followed for each client for both interventions. We used the Coding Sheet as a guide for potential patterns observed with participants. An example of a completed Coding Sheet is in Appendix H. After completing this process, I compiled the Coding Sheets, assimilated the information and identified individual movement patterns, discerned the similarities and differences between the physical therapy and dance/movement interventions, and distinguished the dynamic features of a dance/movement intervention; all of which are discussed in Chapter 4. The findings section in Chapter 4 also contain video clips to augment my observational findings.

Initially, I attempted to record any and all movement observed whether the movement occurred once or consistently within the five videotaped PT and dance/movement sessions under each BESS category. Upon review of my initial reporting with the first case study, it was evident that not all the information recorded was meaningful. I then proceeded to observe for recurring patterns and themes across all five sessions per intervention to distill each participant’s movement patterns and themes and proceeded by following the systematic methods described above.

The following summarizes the analytic process employed to identify the dynamics of a dance/movement intervention and discern the similarities and differences between two therapeutic modalities - physical therapy and dance/movement:

- gathered background information regarding the five clients for client profiles
- gathered background information regarding physical therapist and physical therapy approach
- reviewed each client videotape upon completion of each videotaped session and recorded initial observations
- systematically reviewed all client videotaped sessions as a whole (1-5) multiple times and recorded findings through memoing
systematically reviewed all videotapes with another Certified Movement Analyst (CMA) for objective verification and quality check to gain a sense of the whole, and identify and record significant LMA features for each participant with each intervention

developed Laban Movement Analysis (LMA) Coding Sheet (Appendix H)

consolidated videotapes and developed 25 minute tapes of each client for each intervention representing each client’s patterns and systematically analyzed patterns and themes using LMA Coding Sheet for each client in conjunction with each therapist

analyzed LMA Coding Sheets and identified participant movement patterns, discerned the similarities and differences between the two therapeutic interventions, and distinguished the dynamic features of a dance/movement intervention

As the observational and analytic tool for this qualitative study, I used LMA to provide me with a clear language for systematically observing, describing, recording, and analyzing movement patterns and themes to better understand the dynamics of a therapeutic dance/movement intervention, especially when compared to physical therapy. Patterns and themes that emerged are discussed in Chapters 4 and 5. The following sections describe LMA and its components.

**Laban Movement Analysis**

The coding scheme I used was Laban Movement Analysis (LMA). Its components of Body, Effort, Space, and Shape (BESS), Bartenieff Fundamentals™ (BF), and Movement Themes, are discussed in this section.

LMA is a systemic method for observing, describing, and analyzing qualitative and quantitative changes in human movement by providing a comprehensive vocabulary and analytic framework. It is a means of perceiving and a language for documenting movement applicable to any body movement research (LIMS, 1990; Freire, 2001; Bartenieff & Lewis, 1980).

The Body component of LMA was further elaborated and augmented by Irmgard Bartenieff, a student of Laban, and is now known as Bartenieff Fundamentals™ (BF). LMA articulates as well movement themes one can observe across all categories of BESS.
For the purposes of this study, I have included BF under the Body component of BESS and discussed the specific movement themes that emerged as part of my research findings: Inner/Outer, Mobility/Stability, Function/Expression, Exertion/Recuperation and Whole/Part.

Following is a discussion of LMA separated into discrete categories: Body, Effort, Shape, Space, and movement themes. Important to realize, however, is that these concepts are all interrelated to one another and to one’s everyday movement experience. Table 3.1 illustrates the LMA categories and components.

Table 3.1  
*LMA Components and Categories*

<table>
<thead>
<tr>
<th>Laban Movement Analysis</th>
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<tbody>
<tr>
<td><strong>Body</strong></td>
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<tr>
<td>Body Organization (Upper-Lower Units)</td>
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<tr>
<td>Body Attitude</td>
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<tr>
<td>Bartenieff Fundamentals Principles</td>
</tr>
<tr>
<td>Bartenieff Fundamentals Exercises</td>
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<tr>
<td><strong>Effort</strong></td>
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<tr>
<td>Flow</td>
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<td>Weight</td>
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<td>Time</td>
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<td>Space</td>
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<tr>
<td>Phrasing</td>
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<tr>
<td><strong>Space</strong></td>
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<tr>
<td>Kinesphere</td>
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<tr>
<td>Dynamosphere</td>
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<tr>
<td>Space Harmony (Scales)</td>
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<tr>
<td><strong>Shape</strong></td>
</tr>
<tr>
<td>Shape-Flow</td>
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<tr>
<td>Directional Movement</td>
</tr>
<tr>
<td>Shaping</td>
</tr>
<tr>
<td><strong>Movement Themes</strong></td>
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<tr>
<td>Inner/Outer</td>
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<tr>
<td>Exertion/Recuperation</td>
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<tr>
<td>Mobility/Stability</td>
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<tr>
<td>Function/Expression</td>
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<tr>
<td>Whole/Part</td>
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*Body*

Body describes the action of the torso and limbs. It is the center of one’s kinesphere. It includes the upper unit which is considered to be more gestural, and the lower unit which tends to be more postural, and body attitude which is about one’s body, space, effort, or dynamic baseline that provides characteristics maintained or constantly renewed as one stands, sits, walks,
and moves. The upper unit is comprised of the head/neck, chest/upper spine, shoulder joint/scapula, and arm which include the forearms, wrists, hands, and fingers. The upper unit initiates and extends reach space (Far, Mid, and Near), communicates through spatial gesture, body touch, grasp, dispersing, and intertwining (Bartenieff & Lewis, 1980). Emphasis is placed on the expressive aspects of an individual’s movement(s), or the expressiveness of the whole movement form which includes the individual’s stance, movements of the torso, and constellation of the limbs (p. 19). The lower unit is used more as the initiator of the center of weight and serves locomotor activity (transport of body weight) and postural changes (support of body weight) (Bartenieff & Lewis, 1980). The lower unit is comprised of the lower back/lower abdomen, pelvis, hips, thighs, lower legs, feet, and toes. Emphasis is placed on observing an individual’s total body alignment along the vertical axis (Bartenieff & Lewis, 1980).

Laban introduced the concept of body attitude or the way in which an individual carries one self as “something that is developing during a movement and/or resulting from it” (p. 110). The four basic forms include pin, wall, ball, and screw. Pin shape refers to straight and narrow stance, wall refers to straight with limbs spread, ball refers to a roundedness, and screw refers to one’s upper body twisted against one’s lower body. Laban observed these forms in terms of expressiveness and as performing a function in relation to space. Pin shape is associated with penetrating, wall with dividing, ball with surrounding or filling, and screw with winding (Bartenieff & Lewis, 1980). Irmgard Bartenieff focused much of her work in the area of Body in applying Laban’s movement theory to what is now known as Bartenieff Fundamentals.

**Bartenieff Fundamentals**

Bartenieff Fundamentals (BF) is an organized system focusing on movement integration and harmony. As previously indicated, Bartienieff further elaborated and augmented Laban’s original work under the Body component of BESS both as an analytic tool as well as an intervention strategy, replete with concepts, principles, and exercises. This extension of LMA is described as “the set of concepts, principles, and exercises in applying Laban’s movement theory to the physical/kinesiological functioning of the human body” (LIMS, 2002, p. 1).

BF principles relate to the internal support of the body to facilitate functional and efficient movement experiences. Bartenieff developed a series of exercises that relate to the BF principles to assist one with body-mind organization, function, and expression. Bartenieff saw these exercises as the foundation for all human movement (Woodruff, 1989).
There are nine BF principles which include developmental patterns (navel radiation, spinal, homologous, homolateral, contralateral); breath support; core support; dynamic alignment; center of weight (weight sensing, grounding, level change, propulsion); gradated rotation; initiation and sequencing (core, proximal, mid-limb, distal/kinetic chains); spatial intent; and effort intent. I incorporate all of the BF principles in my therapeutic dance/movement sessions beginning with accessing the core through breath support and breath supported exercises.

Bartenieff developed exercises that relate to the structural relationship of the body focusing on movement integration and harmony. The BF Principles mentioned above relate to the internal support of the body to facilitate functional and efficient movement experiences. Bartenieff’s exercises relate to these principles and are fundamental in assisting individuals with body-mind organization and the function and expression that are the foundation of all human movement (Myers, 1983). These exercises are called the ‘Basic Six’ and include the thigh lift, forward pelvic shift, lateral pelvic shift, body half, knee drop, and arm circle. These exercises are conducted in a lying down position on the floor with varying positions of body parts. I incorporate some of these exercises in my therapeutic dance/movement classes.

The Basic Six initially focus on the articulation and internal physiological changes dealing primarily with Effort Flow and Shape Flow changes (Bartenieff & Lewis, 1980). Once these exercises become more internally developed with one’s body, Effort and Shaping of space begin to crystallize. Developmental patterns begin to emerge and strengthen the process of BF. The process of reawakening the muscles and joints and extending one’s movement options expressively, energetically, and developmentally is essential for one’s ability to accomplish these exercises and therefore become a more functional and efficient mover (Bartenieff & Lewis, 1980).

**Effort**

Effort describes how the body concentrates its exertion as the body changes in its quality of movement through Flow, Weight, Time, and Space. These are called Effort Factors. Each Effort factor has two Effort elements. The Effort graph illustrates all Effort factors and elements and their relationship to one another. The left side of the graph refers to indulging elements while the right side refers to condensing or fighting elements. Below illustrates the Effort Graph.
Please refer to Appendix A for a list of each Effort element with its corresponding symbol. Laban found that each Element communicated the quality of an individual’s movement and reflected the inner attitude or inner impulse of one’s intent to move (Bartenieff & Lewis, 1980).

Flow is described as an individual’s changes in the quality of the flow of tension in becoming either Free or Bound (Dell, 1977). It describes the mover’s attitude or feeling toward the on-goingness or progression with a certain type of precision. It is about feeling alive and asking how one gets started and how one keeps going – whether it is done freely or carefully. The two Flow Elements are Free and Bound.

Weight is described as being either Strong or Light. It is about sensing one’s weight, and asserting one’s self, and about intention. Weight asks the question ‘What is my impact?’ Strong weight is impactful, vigorous, and powerful, and Light weight is about using fine touch, airy, and delicacy.

Time is about the changes in the quality of time in movement and is described as either being Quick or Sustained. Quick time is about decision and urgency. Sustained time is about taking time, being leisurely, or delaying. Time is about how one approaches an activity or event and not about the time on a clock.

Space focuses on the question of “In what manner do I approach Space?” It describes how one approaches space and what an individual’s attitude is toward the exertion in space as it is approached. Space is about attending, investigating, thinking, and orienting whether specifically or generally (Bartenieff & Lewis, 1980). The two Space elements are described as Direct and Indirect.

Everyday movement is usually seen with more than one Effort Element. An individual learning to become a CMA first learns the distinction between each element separately. As the concepts become clear, the CMA is able to recognize that several Effort Elements are happening
within a given movement or action. Laban called these Effort combinations Basic Effort Actions or States, and Transformations or Drives. Although I did not observe for States and Drives as part of my study, I wanted to provide the reader with all the concepts related to Effort.

Most individuals move in States and sometimes in Drives versus single Effort Elements. There are 6 States which have a combination of two Elements in each, and four Drives which have a combination of three Elements in each. Laban identified these Basic Effort Action States when he observed patterns of workers’ movement during his wartime industrial studies (Bartenieff & Lewis, 1980). These States include Space, Weight, and Time and exclude Flow. Drives are composed of three Effort Elements in which Flow becomes an active element at the expense of either Weight, Time, or Space. Please refer to Appendix A for a diagram illustrating these States and Drives and their Effort Element combinations with corresponding symbols.

Effort phrasing is another aspect of Effort which looks at duration. A phrase is described as “that organization of a movement process that consists of a beginning, middle, and end of a statement” (pp. 73-74). Phrasing in movement is a shifting of tensions and a balancing of Laban’s four major movement themes which include Exertion/Recuperation, Mobility/Stability, Function/Expression, and Inner/Outer. Effort phrasing tells one how. Phrasing expends energy at various rates followed by a rest as is similar with the concept of Exertion/Recuperation. It is the manner of execution or the way in which energy is distributed in the execution of a movement or series of movements. Effort phrasing or dynamic transitions are perceived in the context of what precedes and what follows during the course of a movement or movement phrase. Effort phrasing types include Even, Impactive, Impulsive, and Swing and can either be short, long, or overlapping. Please refer to Appendix A for phrasing with their corresponding symbols. Effort phrasing is important for balance. There are phrases within phrases. Laban observed phrases to be about relationships, sequencing of events, and meaningfulness. Phrases tell a story that consists of a beginning, middle, and an end.

**Space**

Space is our environment; we swim in and are supported by space. Space is the locality in which changes take place. It is the superabundance of simultaneous movements. Spatial tensions penetrate the body architecture.

Laban observed one’s kinesphere as defining one’s own personal space from the general space by a sphere that is traced by reaching the limbs out to the periphery without losing
standing support. All other space is considered general space (Laban & Ullman, 1966). We carry our kinesphere with us, as the saying states, ‘wherever you go, there you are.’ Laban identified 26 directions in space radiating from the center of the kinesphere with the 27th being our center at mid-level. Our center of gravity and kinespheric center is related to the division of the two directions of each dimension; vertical, horizontal, and sagittal. The dimensions connected form an octahedron. This three-dimensional cross establishes three planes of high, medium, and low. Laban distinguished that the body tended to move in certain areas of the kinesphere which were called ‘zones’ of the limbs (Laban & Ullman, 1966). In order for the body to reach in certain directions it must flex, rotate, or extend within the laws of the harmony of movement. Each joint has a range of movement due to its angle in the human body.

Dynamosphere can be described as the space in which our dynamic actions take place. The kinesphere has many dynamic actions that are associated with specific points in space. Laban called this the natural sequences of the dynamosphere (Laban & Ullman, 1966). He observed affinities with the action moods and space. The relationships between these actions are due to their proximity in the kinespheric space. Those actions which were opposites (float, punch) tended to be located at a distance from each other. The crystallization of these dynamic moments was possible due to their unique combinations of Time, Weight, and Space elements (Laban & Ullman, 1966).

Space harmony is the Inner and Outer architecture of one’s life and one’s environment. The architecture of the human body follows movement that is harmonious with the laws of interdependent circles and pathways in space. The circle was the first shape studied in early civilizations such as with the Greeks. It represented harmony of life and nature. It became a symbol to convey the wholeness and harmony as is represented with the wedding ring with the harmony and unity to two people (Laban & Ullman, 1966). The science of harmonic circles has its origin in the discovery of the laws which rule the architecture of the body. Harmonic movement follows the circles which are most appropriate to our bodily construction. Movements of the body and its limbs do not generally make straight lines, but form curves, passing through zones which are an accumulation of points situated on the circumference of one’s kinesphere. From the guidebook, The language of movement: A guidebook to choreutics (1966), Laban states that
Our body is a mirror through which we become aware of ever-circling motions in the universe with polygonal rhythms as a continuous creation of fragments of polyhedral forms. The body itself, in its anatomical or crystalline structure, is built according to the laws of dynamic crystallization. (p. 5)

These crystalline structures became interesting to Laban as they reflected the same pattern in human movement (Laban & Ullman, 1966).

One’s body senses equilibrium by attaining movements of opposition. For instance, when one side of the body tends to move in one direction, as with walking, the other side will almost involuntarily tend to go towards the opposite direction. One senses the loss of equilibrium and produces the opposite movement to offset the feeling of imbalance. In general, the goal to establish equilibrium through symmetrical movements is the most basic manifestation of what Laban called harmony. He stated that “the aim of this is not merely to hold the body in an upright position, but to achieve a unity of form, a wholeness, a completeness” (p. 54). This is not always true however, especially for individuals with mobility/stability and other types of physical problems. Their bodies may not move in a symmetrical manner and they may have to think in a more volitional way to produce the movement desired.

The mind attempts to play the role of the outside observer; however, because it exists within oneself, it is closely held to one’s bodily perspective (Laban & Ullman, 1966). Through one’s bodily perspective, one can reveal the connection between emotion within oneself and movement outside oneself to create Space Harmony from this inner/outer perspective. Laban also studied the organization and formation of different geometric structures such as the tetrahedron, octahedron, and icosahedron which are composed of the most stable and fundamental structures in nature. The cube and the dodecahedron are more mobile structures and are about space and body, respectively (Bartenieff & Lewis, 1980). Through the study of these geometric forms, Laban developed Space Harmony scales which include the Dimensional, Diagonal, Axis, Primary, A & B, and Girdle Scales. Laban identified certain affinities within each of these scales as one moved through them. By studying and experiencing these scales, an individual is able to obtain practical experience of the BESS and BF concepts and principles. The scales also follow Laban’s four major movement themes as one moves through the scales. Please refer to Appendix A for examples of these Space Harmony scales and Space symbols.
Shape

Shape is about creating context and meaning. It organizes the Body, contains Effort, and gives form to Space and is one’s baseline for movement. Shape gives rise to motion, movement, and change. Laban identified Shape to be about intuiting as a way of knowing one’s relationship to the whole and to its parts and about creating relationships. Shape Flow is self-referential, body oriented, and inner. It is about focusing on the self excluding one’s environment and is a baseline of all movement. Directional movement, Arc-like, which is a linear type of movement with many parts unfolding into a direction, and Spoke-like, which is like a flat arc type of movement, generally an action of one joint, is about bridging to one’s environment and is goal oriented. It appears as the most basic form in which movement establishes a relationship to the surrounding space beyond the reaches of one’s kinsephere. Shaping is about the self interacting with the environment and is process oriented by molding and adapting to the space in a two or three dimensional manner by Gathering or Scattering. It is about carving, molding, sculpting actions and creating rounded spatial forms while interacting and forming relationships within the environment. It is richness and fullness of the body as it molds itself in relation to the shape of space and adapting to it.

Movement Themes

As noted earlier, LMA articulates as well movement themes that are integral in all areas of BESS; namely: Inner/Outer, Function/Expression, Mobility/Stability, Exertion/Recuperation, and Whole/Part. The concept of the themes is inherent within Laban’s philosophy and has been passed down through oral tradition. Irmgard Bartenieff advanced the themes through her work with the BF Principles (Hackney, 2002). The movement themes operate on the principle of recognizing some occurrence or movement by duality with the understanding that duality is about harmony and oneness – the balance between Inner/Outer, Exertion/Recuperation, Mobility/Stability, Function/Expression, and Whole/Part.

Our lives are formed from opposites or polarities such as differentiating between up and down, good and bad, right and wrong, left and right, open and closed, full and empty. Laban called these pairs of polar opposites merely shadings of each other – the unity of opposites. Hackney (2002) states that this concept of polarization is a developmental stage of knowing and is appropriate within certain contexts. However, as a culture we “are realizing that our capacity for knowing resides in our living body (including physical tissue, spirit, emotion, and mind).
Knowing is also in creative relationship with not knowing, uncertainty. As we come to this point, we begin the integration process which is necessary for our continued growth” (p. 208).

Inner-Outer relates to the inner impulses that reveal themselves through movement, regardless of how large or small. Hackney (2002) cites Laban as stating “some failures of our civilization are surely influenced, if not produced by the fact that we do not pay more attention to human movement – bodily and mental – which is obviously at the basis of all human activity” (p. 45). How one moves affects one’s environment and one’s outer environment is in interaction with one’s inner experience.

Function-Expression is associated with how an individual’s movement function serves as an expression in the world and vice versa. The slightest change in movement will affect the functional and expressive content of the communication portrayed. Hackney (2002) states that in patterning or re-patterning, it is valuable to discern the purpose the movement is serving an individual before embarking on a change process. Hackney (2002) cites Bartenieff by stating “Body movement is not a symbol for expression; it is the expression” (p. 34).

Stability-Mobility is about activating the body for grounding and mobilizing. When an individual senses grounding or stability, he/she feels a sense of security and freedom by which to move or mobilize because there is support for the movement to take place (Hackney, 2002).

Exertion followed by recuperation is a natural cycle that an individual’s body uses to re-energize itself to maintain movement vitality. Exertion and recuperation are contained within movement phrases. The recuperation phase happens after the movement action. The recuperation affords the individual a natural change of movement quality to recuperate from the exertion of a particular action (Hackney, 2002). Bartenieff and Lewis (1980) quoted Laban’s philosophy of Exertion-Recuperation:

Laban considered elemental rhythms as those based on polarities of exertion and recuperation, such as Awake/Asleep, Work/Rest, Condensation of Tension/Dissipation of Tension – all expressed in Spatial and Effort patterns and in the use of body parts. Changes within movement – contrasts and near-contrasts – produce rhythmic patterns of stresses and phrasing, which can be experienced in the spatial scales. (p. 71)
The theory of Whole/Part corresponds with the concept of Phrasing and that of Integration. Observing the Parts that relate to the Whole to form a sense of Integration is a significant facet of LMA. Hackney (2002) describes this interrelatedness as follows:

Being sensitive to the phases of the phrase trains us to tune-in to the full creation that is taking place in the life of the movement, not simply its most spectacular or visible moment. Most people who are not trained in LMA are focally aware of only the main action. For instance, they are much less aware of what preceded and followed a leap than they are of the leap itself. By being aware of the larger phrase, the LMA and Fundamentals practitioner learns to value the contribution of the less visible elements as well. This is useful when we speak of coming into an Integral Perspective, because frequently that which is truly Integral looks less spectacular than the moments of highest differentiated articular form. Frequently in LMA we talk about teaching in a format which includes Whole – Part – Whole. In this format it is important to remember that the WHOLE which one returns to after differentiating the PARTS is not the same as the original WHOLE of oneness. The latter whole is actually integration. One could look at this concept as Oneness – Differentiation – Integration. As a phrase, this could describe the learning process in the creation of an embodied human being. (p. 212)

The whole body is connected with each part in relationship with the other. A change in one body part will change the whole. This theme involves body integration through movement as well as the integration of movement and bodily knowing into one’s life (Hackney, 2002).

There is not an expansive amount of literature written specifically about the major movement themes. However, the themes are heavily embedded within the Movement Analysis Certification Program through the Laban/Baretnieff Institute of Movement Studies and throughout other Laban’s writings from a broad theoretical perspective rather than a provision of clear definitions to the terms.

Summary

Presented in this chapter are the research methods and procedures used for the study. LMA was the analytic tool by which to observe, collect, record data, and interpret findings regarding client and therapist’s movement patterns and themes and the dynamics between clients and therapists. Chapter 4 presents these findings.
CHAPTER 4
RESEARCH FINDINGS

Introduction

Qualitative research involves a commitment to extensive time in the field collecting data, engaging in a multifaceted, time-intensive process of data analysis, organizing large quantities of data and condensing them into relevant themes, supporting claims through narratives and in my study, video clips\(^{i}\), and participating in a style of social science research that is evolving (Creswell, 1998). My qualitative research study followed this comprehensive and rigorous method of inquiry.

The findings reported in this chapter focus on all participants within the study: (a) the five case studies referred to as clients, (b) the physical therapist, and (c) the movement therapist (the researcher). Five clients received five weekly physical therapy and dance/movement sessions. Each session was videotaped and analyzed through Laban Movement Analysis (LMA). LMA provided the observational and analytic tool employed in the study, presenting a framework of fundamental principles to understand the structure and meaning of movement through its components: Body, Effort, Shape, and Space (BESS), Bartenieff Fundamentals, and Movement Themes.

The chapter begins with an introduction to each client (case study) followed by their demographic composition. As a backdrop, each case study narrative contains the client’s cause of injury, psychosocial history, medical and rehabilitation treatment, residuals due to their brain injury, and information regarding my introduction to them. Pseudonyms were used in place of clients’ actual names to protect their privacy.

The findings section contains an overview of the physical therapy and dance/movement interventions, a summary of the findings, tables representing clients and therapist’s movement patterns distilled from the data, examples with video clips to illustrate and augment my findings, and summary impressions of the two therapeutic interventions based on my findings. The chapter concludes with a brief summary.

\(^{i}\) When discussing the specific session vignettes, video clips have been inserted to offer a visual understanding.
Introduction to Case Studies

This section provides background information regarding each case study. The narratives include biographical information and other relevant data capturing the essence of each case study, also referred to as clients. Data were obtained through client assessment, family and close associations’ interviews through open-ended questions, and through client medical records. Following are the five client profiles.

Case Study 1: Joanna

**Background:** Joanna is a 30 year old single woman who had a history of depression. In February of 2003, she sustained a brain injury due to a gunshot wound to the left temporal lobe. The wound was reported to be self inflicted. Her father found her in her apartment several hours later. She was living alone and working full-time as a paralegal at the time of her injury. Joanna received medical treatment and acute rehabilitation. Once medically stable, she was transferred to a long term care facility. Due to significant cognitive and physical deficits resulting from severe brain injury, Joanna was not considered to be a candidate for intensive post acute rehabilitation during her first two years post injury. She did, however, receive minimal physical and speech therapy the first two to three months while at the long term care facility. Therapies were discharged at that time due to her slowed progress. Joanna used a wheelchair for mobility; however, she was able to ambulate with the use of a walker for short distances. She did not speak but would mumble some words. As a result, she was assessed to have significant cognitive deficits. She was incontinent and wore Depends, and was taking an anti-depressant medication.

**Engagement:** I met Joanna in January of 2004. She was referred to me for a cognitive rehabilitation assessment. I met with her and her father at the long term care facility to conduct an assessment. During our meeting, I proceeded to ask Joanna questions regarding her psychosocial history. She did not speak or nod yes or no. She appeared non-responsive. Her affect was flat. As a result, Joanna’s father proceeded to answer the questions and provide the psychosocial history on her behalf. He stated that Joanna did not speak or interact with others except minimally with her mother. Halfway through the meeting, Joanna apparently became uninterested in the conversation and proceeded to wheel herself out of the meeting room in her wheelchair. I remember thinking about how bored Joanna must have been during the meeting. She helped me realize I needed to end this approach and try a much different method of assessing her cognitive abilities.
Upon completion of the meeting, I talked with Joanna’s father about the idea of Joanna attending one of the dance/movement classes. My intention was to assess her cognitive and psychosocial abilities through movement within a group setting.

The following week Joanna and her mother attended and participated in the dance/movement class. Joanna participated along with her mother. Joanna arrived in a wheelchair with splints on both lower legs. Her mother brought her walker which she used as we moved across the floor while working on balance and coordination during ambulation. Joanna did not speak during the initial session; however, she did nod yes and no to questions that were asked of her during the class. Her affect fluctuated during the session and she did smile slightly a couple of times. When demonstrating a movement on the therapy ball, I fell off and she laughed.

In assessing Joanna’s cognitive abilities, it was evident Joanna was able to comprehend when someone spoke to her. For example, I was handing out pieces of fabric and provided Joanna with fabric to give to those individuals near her. When asked if she could hand them to the others, she did. When I needed someone to assist me with demonstrating a new movement I asked Joanna and she responded. Joanna participated during the entire session.

During Joanna’s fourth session, her mother watched her from outside the classroom. Later her mother stated she had observed the class through the window. She cried as she watched her daughter move across the room, interact with others, smile, and fully participate in the class with her peers. She stated she never thought that would happen as the neuropsychological evaluation described a very grim outcome for Joanna’s future.

Currently: Joanna remains in a long term care facility. She volunteers at the facility by transporting residents in wheelchairs to activities and meals. She walks without any assistance, is continent, and speaks her mind. She was eventually accepted into a rehabilitation program for 4 weeks and received physical, occupational, and speech therapies. She participates in a brain injury day program referred to as the Clubhouse, two times per week. The program provides pre-vocational activities and assists with learning independent living skills. Joanna continues to participate in the therapeutic dance/movement sessions.

Case Study 2: Cole

Background: Cole is an 18 year old single young man who was diagnosed with a thalamic glioma (brain tumor) in December of 2001 at age 14. Prior to tumor resection, he suffered a hemorrhage resulting in clinical destabilization. A craniotomy for resection of his right thalamic
tumor was subsequently performed, as well as an evacuation of the hematoma and VP shunt placement, secondary to ventriculomegaly. The biopsy revealed a diagnosis of high-grade brainstem astrocytoma. Cole underwent radiation therapy to treat the tumor bed and received medical and rehabilitation treatment for several months before being discharged back home under his mother’s care. Historically, the prognosis for this type of tumor has been poor as stated by epidemiologic findings. Cole has been continually followed by his neurologist for any signs of neurological change. Upon discharge, Cole was able to walk for short distances with a walker and used an electric wheelchair for functional mobility. He experienced left sided weakness and his speech was dysarthric at times but much improved since his initial tumor treatment. His eyes showed decreased visual tracking for up and down movements secondary to gaze palsy. Cole’s cognitive abilities were not significantly compromised as demonstrated by a neuropsychological evaluation. Prior to Cole’s tumor, he was living with his mother and attending public school and engaged in extra-curricular activities. Cole returned to school the following year in the special education program. Cole is not prescribed any medications.

**Engagement:** Cole and his mother learned about the therapeutic dance/movement classes during a brain injury support group meeting in 2004. Cole’s mother called to inquire about the program and the following week, they both attended and participated in the therapeutic dance/movement class. Cole’s mother assisted him with all his needs during the class as she had been doing since his surgery. He was able to operate his electric wheelchair to maneuver himself around the dance studio with his mother’s cueing. When transferring Cole from his wheelchair to his walker, he required the assistance of two people due to his significant left sided weakness and unstable gait. He was able to walk for short distances with his walker and one assistant, and then needed to transfer back into his electric wheelchair due to fatigue. Cole’s dysarthric speech was evident and others in the class needed to ask him to repeat sentences so that they could comprehend what he was saying. Cole was socially interactive with the other participants and exhibited a good ability to comprehend the class while also interacting with others in the class. After the initial session, Cole’s mother commented that he enjoyed the session and wanted to continue participating. Cole continues to participate in the therapeutic dance/movement classes.

**Currently:** Cole is a senior in high school and remains living with his mother. He continues to make progress in all aspects of his life. His dysarthric speech has improved significantly. He walks with a walker and a quad cane rather than using an electric wheelchair. He is able to walk
up and down stairs with minimal to moderate assistance. Cole is becoming more independent and confident with his abilities and no longer feels the need for his mother’s assistance. For example, Cole let his mother know that she no longer needed to be in the therapeutic dance/movement classes with him anymore. He wanted to participate in the classes independent of her being there for him. He felt very comfortable and connected within the class – demonstrating the concept of Self/Other and Inner/Outer. As a result, Cole’s mother now drops him off at the front entrance and he walks inside by himself and enters the dance studio independently with his walker. When class ends, Cole proceeds to exit the dance studio and walks outside where his mother awaits.

Another example is when Cole and his mother registered to participate in a 10K & 1 mile run/walk. Cole’s mother intended to walk the 1 mile with Cole. Cole had something different in mind. At the 1 mile turnaround, Cole continued to mobilize himself in his electric wheelchair. His mother did not know at that moment that he had gone ahead. She became very upset when realized he was not near her and called the on-site authorities. When we located Cole, he was heading toward the 10K turnaround marker with the biggest smile on his face I had ever witnessed. I alerted Cole’s mother as to where he was and that he was safe and doing quite well. When he returned to the event start, his mother was not sure how to react but when she saw the smile on his face she greeted him with a big hug. She later commented that that was the first time Cole had ever gone anywhere without her in the community since his injury. They were both learning how to let go again.

**Case Study 3: Roger**

**Background:** Roger is a 40 year old single man who in December of 1990 was diagnosed with a medulloblastoma (brain tumor) which was located in the cerebellum near the brain stem. At the time, Roger was serving in the military and had been complaining of nausea, dizziness, and lack of appetite. Prior to these symptoms, Roger reported having a healthy and active lifestyle. At age 24, he had lost more than 50 pounds within three months putting him at under 100 pounds, yet his supervisors apparently denied him medical treatment as they thought he was attempting to avoid serving in the Gulf War. It was not until Roger collapsed one day during an exercise run that he was taken seriously. Roger was sent to a military hospital where he underwent several tests before being diagnosed with a brain tumor. Surgery was performed to remove the tumor which left him with significant speech, cognitive, and physical deficits. After surgery a
Tracheotomy had to be performed due to increased aspiration. He had radiation and chemotherapy treatment for approximately 2 months. Roger was discharged to his mother’s care and was given an honorable discharge from the military. As a result of his surgery, Roger exhibited cognitive deficits, had left sided hemiparesis, and was dependent upon a wheelchair for mobility. Roger’s speech was impaired and he required a permanent tracheostomy due to risk of aspiration. Since the insertion of his tracheostomy, Roger has had 11 bouts of pneumonia requiring hospitalization. Roger was diagnosed with having a severe brain injury secondary to brain tumor.

**Engagement:** Roger heard about the therapeutic dance/movement classes from his mother. She had encouraged her son to participate in the program for a year before he decided on his own to attend a class. Roger came to class in March of 2005 and participated fully during his first session. After Roger completed the first five classes, he commented that the program was different than what he had expected. He stated that for him, the program was about learning how to move as a whole and feeling good about how he moved and how he interacted with others. Roger thought the classes were going to be about learning how to dance which he did not feel very confident about doing, especially considering his feelings about what he called his unsteady gait. Roger was happily surprised however with what the classes offered him. The themes Roger appeared to be describing included Whole/Part, Self/Other, Inner/Outer and Function/Expression. Roger was sensing the use and integration of his whole body during various dance/movement activities rather than concentrating on one specific body part. Additionally, Roger sensed a connection with himself while also being able to bridge to his environment, which involves bridging to others - being Outer - and being expressive. Please refer to Chapter 3 for a description of these themes.

**Currently:** Roger walks with the assistance of a cane, has not been hospitalized for pneumonia in two years, is not on any medications, and is actively advocating for services for individuals with brain injuries. He resides with his father, and his mother lives nearby. He takes public transportation and participated in a 10K run/walk in which he walked the entire 10K – a first since the onset of his tumor in 1990. His speech has improved significantly as well as his physical, psychosocial, and cognitive abilities.
Case Study 4: David

Background: David is a 59 year old divorced man who suffered a cerebral vascular accident (CVA) in May of 2001 at age 54. At the time of his CVA, David was working as a consultant for an engineering firm. Prior to his CVA, he reported enjoying a healthy lifestyle. He remembered being at work and feeling nauseous. The next thing he recalled was being in the hospital. David received medical treatment and rehabilitation post injury including physical, occupational, and speech therapies. He was reported to have had a severe brain injury. Residuals from his CVA included poor speech, limited mobility with the assistance of a walker, and weakness of his right side due to hemiparesis. David was living with his wife at the time of his injury. He returned home after being discharged from in-patient rehabilitation and continued physical and speech therapies intermittently over a two year period. David also participated in individual and group therapy during this time. One year after David’s CVA, he and his wife separated and eventually divorced. David stated his wife was unable to deal with the changes he experienced after his CVA.

Divorce is not an uncommon occurrence among married couples after one of the individuals sustains a brain injury. As with many married couples in this situation, restructuring of the family is very difficult due to role changes which cause distress on the entire family system (Rodger, Wood-Levent, & Yurdakul, 1997; Rogers & Kreutzer, 1994; Corrigan, 1994). Many spouses report that they are “married to a stranger” due to the significant and long-term cognitive, physical, and psychosocial changes experienced by the effected individual (Rogers & Kreutzer, 1994). Although David was unhappy with the decision, he reported adjusting well and when he can, visits with his two grown children who reside out of state.

Engagement: I met David in April of 2005. He had heard about the therapeutic dance/movement program and decided to try it. He came to the class wanting to improve his mobility including balance and coordination. At the time, he was using a walker to assist with ambulation. He explained that he had poor balance and coordination and would frequently fall. He commented that he was unable to benefit from physical therapy regarding this issue and was hoping this program would assist him with accomplishing his goal.

Currently: David is walking with a cane and on occasion uses his walker. He resides by himself and is no longer afraid of falling. His medication regime includes anti-seizure and anti-depressant medications. He is able to drive again and recently bought a Ford Mustang to
celebrate life a second time around. He continues to participate in the therapeutic dance/movement program.

Case Study 5: Connie

Background: Connie is a 58 year old divorced woman who fell and hit her head on the pavement in May of 1994 at age 46. Falls are one of the leading causes of brain injury in the U.S. (CDC, 2006, CDC, 1999). Connie received medical treatment and rehabilitation services post injury for a short period. Her injury was diagnosed as moderate. In September and October of 1994, Connie suffered several cardiovascular accidents (CVA). Prior to her CVA’s, she had a history of adult onset diabetes. Connie remembered waking up one morning not feeling well with right sided weakness and decided not to go into work that day. Later that day, Connie made an appointment to see her physician. Results from the MRI tests revealed left temporal and parietal lobe damage and indicated she had had several strokes that affected the same areas of the brain. Connie was not treated in an in-patient hospital setting. She did however receive medical treatment to catheterize her blocked arteries and received out-patient physical and speech therapy for several months to strengthen her right side and to improve her speech and memory. Residuals from her CVA’s in combination with her first brain injury included right hemiparesis, poor speech, short term memory deficits, and reduced mobility requiring the use of a walker. Connie worked for an insurance agency as an office manager prior to her CVA’s. Social isolation is one of the common long term effects after a brain injury. The desire for opportunities to meet new people and make friends is very challenging for many reasons (Corrigan, 1994). She feels isolated and unable to meet new friends due to her inability to return to work and make money as she depends on social security disability income. She is unable to drive or safely take public transportation due to her fear of falling, and she continues to reside with her daughter with whom she does not have a close relationship.

Engagement: Connie was referred to the therapeutic dance/movement program through a physician. She called me to inquire about the program and with some encouragement and transportation coordination, Connie began her first class in March of 2004. She arrived at the class with her neighbor, who drove her. She walked with the use of her walker taking small cautious steps. She had a pleasant demeanor and spoke clearly yet with a soft spoken voice. Connie participated in the class and at the end of the session she stated she would like to continue the program. After attending several classes, Connie commented that she was grateful
to have somewhere to go and people to be with every week as she lives a very isolating existence.

**Currently:** Connie is able to walk with the use of a cane. She continues to be dependent upon others for her transportation needs. Connie has been fortunate to have found a neighbor willing and able to drive her to places she needs to go. She has made a friend. This past autumn, Connie was invited to attend a boat cruise in which other individuals with brain injuries, their families, and others would be present. When Connie was invited, her eyes lit up like the stars on a clear night. She hesitated for a moment then asked me in her soft spoken voice if she could bring her friend who would be her driver. Connie and her friend attended the boat cruise that autumn evening. Connie was among many friends she had made in the therapeutic dance/movement program and met others who would become friends. After the event, I received a thank you note from Connie for the special opportunity to be with friends.

Connie continues to participate in the therapeutic dance/movement program.

**Client Demographics**

The five case studies presented above are a heterogeneous group, although they share some similar attributes; the most evident being that they all sustained a brain injury which changed the course of their life. Four of the five individuals were diagnosed with severe brain injury and all five received medical treatment and conventional rehabilitation including physical, occupational, and speech therapies. Each individual exhibits a range of cognitive, physical, and psychosocial deficits due to their injury. Four of the five individuals were injured in adulthood and were living on their own and working full-time until the onset of their injury. Post injury, all five individuals were receiving some type of Social Security benefits due to their permanent disability. In all five cases, there was no reported evidence of substance abuse pre or post injury.

One individual suffered from a gunshot wound to the head, one suffered from two brain injuries - a fall followed by several CVA’s, another individual suffered from a CVA, and two individuals were diagnosed with two different types of brain tumors. Two individuals were diagnosed with a traumatic brain injury and three with an acquired brain injury. Their injuries caused different types and combinations of cognitive, physical, and psychosocial deficits with all individual’s compensating in their own way. There were two females and three males in the study. Their ages ranged from age 18 to 59. Two individuals were African-American and three were Caucasian. Years post injury ranged from 2 to 15 years. Pre-injury, their socio-economic
status ranged from upper middle class to lower middle class. Two individuals were divorced with children with one individual divorced pre-injury and one post-injury, and three individuals were single.

These five cases represent the heterogeneity that characterizes individuals with traumatic and acquired brain injuries. They come in all different shapes and sizes, socio-economic status, age, race, gender, cause, and severity. No one is immune.

Physical Therapy and Dance/Movement Intervention Findings

This section contains an overview of the physical therapy and dance/movement sessions received by the clients, a summary of the findings, tables characterizing the participant’s movement patterns distilled across all five intervention sessions, and examples demonstrating my findings augmented by video clips.

The systematic procedures employed to distinguish participant’s movement patterns are outlined in Chapter 3. Not all qualities or factors were significant or evident as part of each participant’s movement patterns. Therefore, only the significant components were listed for each client and therapist.

Physical Therapy Intervention

Overview of Sessions

The physical therapist received background information regarding each client prior to meeting with them. The initial physical therapy session for each client entailed a PT assessment. The assessment was similar in approach and procedure across cases. The physical therapist explained her role as a therapist and stated she would develop a treatment plan based on her findings. The therapist assessed each client’s lower extremity function with regard to balance, strength, gait, and joint flexibility. The treatment goal was the same for all five clients: to provide lower extremity stretching and strengthening exercises, postural correction, gait training, and balance re-education and a home exercise program. The exercises and activities were varied depending upon the client and their specific PT related issues.

The client’s individual sessions contained a series of exercises and activities resulting from each client’s treatment plan which was similar across sessions and across cases. For example, from the second to the fifth session, four of the five clients began their sessions by walking on the treadmill to warm up followed by a series of sitting and standing leg stretches.
Cole did not attempt to walk on the treadmill until his last session due to his unstable gait. After the treadmill warm up, a series of exercises and activities were completed focusing on strengthening, flexibility, and gait. They were performed sitting in a chair, on the physio-ball, and standing. The therapist’s intervention tended to focus on lower extremity single joint actions with the exception of walking and the physio-ball activities. Exercises and activities focused primarily on lower extremity stretching, strengthening, manipulation, mobilization, neuromuscular re-education, and activities to maximize functional mobility. These included standing and sitting stretching and strengthening exercises for the hamstrings, calves, and adductor muscles, strengthening exercises for the hip flexors and extensors, quadriceps, knee flexion-extension, ankle and foot muscles. Activities included standing dynamic balance by stepping forwards, sideways, and backwards, using the balance boards.

The sessions ended with the therapist providing verbal cues by stating “the last exercise we will be doing is… and then we will be finished for today.” Upon the completion of the final exercise, the therapist would usually initiate a verbal exchange by stating “good-bye and I’ll see you next week.”

Equipment used during the PT sessions included the physio-ball, two types of balance boards, and exercise bands. The physical therapist also used a blood pressure cuff on David during the assessment due to his history of high blood pressure and used ultrasound therapy on Joanna’s foot during one session to assist with muscle relaxation and release. PT sessions were provided on an individual basis in the physical therapist’s clinic.

**Therapeutic Dance/Movement Intervention**

**Overview of Sessions**

I received background information regarding each client prior to their participation in the therapeutic dance/movement sessions. The sessions were conducted in a group setting with Connie, David, and Cole in one class and Joanne and Roger in another class. Additional individuals participated in the two classes that were not part of this study. The classes were held in two different dance studios within community centers.

Sessions comprised of warm-ups, center floor work (based on a particular theme), Tai Chi as our cool-down, and deep breathing exercises. Each of the two groups decided what type of exercises they wanted as part of their warm-ups and how they wanted to perform them. For
example, Joanne and Roger’s class conducted their warm-ups sitting on the floor while Connie, David, and Cole’s class conducted their warm-ups sitting in chairs followed by standing at the ballet barre, which was available in that particular community center’s dance studio.

The warm-up served several purposes: to bring the group together in a circular formation establishing a safe and connected environment; to organize the body through breath support as a baseline and connect with self; to stimulate group interaction and self awareness; and to stimulate cognitive processing through imagery and directives. The center floor work focused on a theme which enabled the group to explore movement from a variety of perspectives depending upon the activity. The group activities included traveling across the floor grasping pieces of fabric and Shaping the fabric in Space focusing on an image or object; balloon tossing in a circle; performing repeatable movement phrases; and drawing images and choreographing dances related to the images drawn. During this time, individuals explored their own movement in relation to themselves and others within the group and within Space. This served as a time to bridge to others within the group (in terms of LMA Movement Themes: Inner/Outer, Function/Expression, Mobility/Stability, Exertion/Recuperation), and to explore a variety and range of BESS components.

Adapted Tai Chi followed by breathing and relaxation exercises concluded each session. Closure provided a sense of completion; a time for the group to re-connect and a time to focus on body awareness and inner-connectedness. This format is typical of a group dance/movement therapy approach practiced by Dance/Movement Therapists. This intervention is unique from the traditional dance/movement therapy’s psychotherapeutic approach in that its focus is based on the physical, cognitive, and psychosocial integration of individuals due to their brain injury.

A variety of music was incorporated during the sessions to promote the type of activity we were performing. For example, we used slow, melodic music for our warm-ups to promote access to core and breath support, and we used rhythmic music for center floor work to promote a sense of inner and outer rhythm with the music. We did not typically use music for the Tai Chi cool-down, and used similar music to the warm-ups for the closure part of the breathing exercises to support a sense of inner connectedness.

Equipment and supplies used included a ballet barre, chairs, stereo, CD’s, scarves, balloons, and paper and pencils.
Summary of Findings Based Upon Observations

In the study, each of the five clients received five weekly physical therapy and dance/movement sessions. The following is a summary of the findings revealed from LMA observational analysis.

Physical Therapy Intervention

The clients received five clinic based physical therapy sessions designed to analyze the biomechanical aspects of the body and develop treatment modalities to restore and strengthen functional movement and mobility resulting from disease, disability, surgery and other traumatic conditions. Emphasis was placed on improving the dysfunctional body parts causing limited functional movement and mobility.

The client’s PT sessions were generally provided one-on-one, focused on specific functional ideas from a single joint action movement perspective with the principle that body integration is obtained upon restoration of the dysfunctional parts.

Since Body was the primary focus of the PT approach, it was not surprising that the sessions tended to focus on exercises and activities associated with the Body aspect of BESS. The intervention addressed body level connectivity and incorporated a balance between Exertion and Recuperation by anticipating the client’s need for recuperative phases in-between exertive activities.

As is characteristic of conventional physical therapy, the sessions were structured such that the assessment was the time by which to obtain subjective and objective client information. The treatment plan was developed and facilitated from the assessment. The physical therapist received client feedback primarily based on how she perceived the clients accomplished their specific tasks. The PT intervention appeared to be prescriptive in nature from the assessment process through the implementation of the treatment plan.

The intervention tended to employ a conventional medical model approach which is standard for clinic based physical therapy. Physical therapy focused on the use of single joint actions as a catalyst for growth and change.

The physical therapist and client’s baseline movement patterns remained constant across all five sessions. Neither of the individuals appeared to influence or change the other’s baseline patterns with the exception of Cole. The specialization of physical therapy was concerned with the functional aspects of an individual rather than the expressive aspects.
The PT goal was very specific and very concrete with discrete exercises assisting clients with the parts of the body that were dysfunctional or weak. The modality is designed to improve a client’s movement from a biomechanical perspective analyzing single joint actions and muscle activities which are not experienced as they are physiologically analyzed (Davis, 1990).

Examples to support my findings are provided in the next section under movement patterns for each case study.

**Dance/Movement Intervention**

The clients received group dance/movement sessions designed to promote a holistic whole body integrative experience. Similar to the physical therapy intervention, dance/movement employed the use of body level connectivity exercises through stretching and strengthening discrete body units. The approach and the manner in which the clients experienced the two interventions were very different, however. The difference being that dance/movement intervention integrated the exercises and activities within a whole body integrative context. Emphasis was placed on whole body-mind integration sensing and experiencing fundamental LMA features which included: Core/Breath Support and Grounding, Aspects of Shape (Shape Flow, Shaping, Directional Movement), range of Effort-Life, and a balance between Whole/Part, Inner/Outer, Function/Expression, Exertion/Recuperation, and Mobility/Stability. The dance/movement intervention supports the principle that full body-mind integration is obtained through Whole body integrative experiences based on body level connectivity. For example, clients were provided opportunities to sense and connect with themselves, connect with others within the group, sense and experience meaningfulness within movement activities, make choices, and experience a variety and range of BESS components.

The sessions progressed from an Inner to Outer, Whole/Part continuum beginning with the warm-ups by accessing Core and Breath support and Grounding, progressing to theme based group activities involving connecting with others, relationships from a Function/Expression perspective and cool-down to focus on the connection between Inner/Outer and Whole/Part connection and the relationship between the duality of opposites.

There was a constant interaction between the clients and myself regarding their experiences of the exercises and activities. Clients were provided with choices and each client’s unique approach to and experience of the activities were respected by the whole group.
Although the client’s and my baseline movement patterns remained fairly constant, we appeared to influence each other’s experience and range of BESS, based upon the needs, interactions, and activities of the clients and the group. My BESS movement qualities were influenced by the needs of the clients and the group as a whole to facilitate individual and group growth and change.

The dance/movement intervention focused on the use of movement as a catalyst for development and transformation. Dance/movement’s goal is about sensing and feeling Whole Body integration experienced through a bodily-kinesthetic approach. Integration is an important component of the rehabilitation process for individuals with brain injuries due to their cognitive, physical, and psychosocial deficits. The modality assists with this integrative process.

**Participant’s Movement Patterns**

This section provides each client and therapist’s list of movement patterns demonstrated by a series of tables. Tables contain a list of BESS components representing each client and therapist’s movement patterns distilled across five therapy sessions: PT and dance/movement. To support and augment my findings, examples with video clips are provided after each set of tables.

Figure 4.1 represents the LMA framework used for observation analysis. Please refer to Chapter 3 for a detailed description of each component under LMA. Please refer to Appendix A for a list of LMA terminology with corresponding symbols, when applicable.

During both therapeutic interventions, Joanna demonstrated consistent aspects of Body Attitude with Forward Saggital tilt when standing upright, as well as exhibiting a concave torso. With regard to Effort, Joanna tended toward Quick Time and Impulsive Phrasing.
Figure 4.1. Thematic of LMA used in recording client observations during physical therapy and dance/movement sessions.

Table 4.1

*Case Study 1 – Joanna and the Physical Therapist’s Movement Patterns*

<table>
<thead>
<tr>
<th></th>
<th>Joanna</th>
<th>Physical Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Forward Sagittal tilt when standing upright; Postural Configurations- concave torso</td>
<td>Body Attitude was Neutral with Body Stance fluctuating between narrow and wide with arms fluctuating between folded in front of torso and down to sides; fluctuating Pin and Wall Shaped Still Forms</td>
</tr>
<tr>
<td></td>
<td>Aspects of BF: Contained Core Support with little to no access to Core</td>
<td>Aspects of BF: All Aspects of BF</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Weight: Passive particularly with upper body; some use of Lightness</td>
<td>Time: Quick</td>
</tr>
<tr>
<td></td>
<td>Time: Quick especially in the Sagittal Plane with patterns of dropping out of Time altogether</td>
<td>Flow: Bound</td>
</tr>
<tr>
<td></td>
<td>Phrasing: Impulsive and Impactive</td>
<td>Phrasing: Short, Impulsive, and Impactive</td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>No significant observations noted</td>
<td>Three-Dimensional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>No significant observations noted</td>
<td>Shape Flow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shaping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Directional Movements</td>
</tr>
</tbody>
</table>
Case Study 1 – Joanna and the Movement Therapist’s Movement Patterns

<table>
<thead>
<tr>
<th>Joanna</th>
<th>Movement Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>Body Attitude: Neutral with Body Stance fluctuating between narrow and wide with neutral legs; head slightly tilted forward in Sagittal Plane; arms slightly Retreating; mostly Neutral stress with some forward Sagittal stress</td>
</tr>
<tr>
<td>Effort</td>
<td>Time: Sustained Weight: Light Flow: Bound Space: Direct Phrasing: Long, Even</td>
</tr>
<tr>
<td>Space</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td>Shape</td>
<td>Shape Flow Movement Shape Flow Shaping Arc-Like Directional Movements</td>
</tr>
</tbody>
</table>

Physical Therapy Sessions - Joanna

Joanna was motivated to activate herself when possessing an outer spatial goal. During the PT sessions, when the exercises and activities did not involve an outer connection to Joanna’s environment, she tended to disengage from the event and discontinued the exercise altogether therefore receiving limited gain from the activity. The PT modality does not lend itself to observing for and addressing this type of fundamental issue in the way that dance/movement does. As a result, the physical therapist was unaware of Joanna’s need for Outer Spatial Intent to engage in activities, however, it was evident from a LMA perspective. The physical therapist was observing and analyzing movement from a biomechanical viewpoint and not from an experience viewpoint. Dance/movement employs both perspectives.

An example follows to exemplify Joanna’s ability to function in her environment when presented with Outer Spatial goals.

During one of the PT sessions, the physical therapist had Joanna perform a series of exercises on the physio-ball. Two of the three exercises involved an Outer Spatial goal. Joanna engaged and participated in these activities fully as illustrated in the video clip (J-PT-1). During these exercises, both individuals were on physio-balls facing each other. The therapist wanted

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ii To review client video clips, please click on each photo provided within Chapter 4. Please refer to Appendix H - Dissertation Video Clip Reference Sheet for a listing of all video clips.
Joanna to touch her hands 10 times with the therapist’s hands in the upward Vertical Dimension followed by her hands being in the Horizontal Dimension alternating from right to left side. Joanna performed the exercises with clear Spatial Intent using Directional Movements to bridge to the physical therapist’s hands from a functional goal oriented perspective. The therapist also used Directional Movements when reaching into Space. Joanna completed the exercises despite her apparent flat affect during the activities. Joanna’s Impulsive Phrasing and Quick Time were present especially as the exercises progressed. The last physio-ball exercise entailed making circles with the ball initiating from the pelvis. Both individuals continued facing each other on physio-balls during the activity. The therapist explained the activity and demonstrated it while on the physio-ball. This exercise did not involve Spatial Intent. As a result, Joanna was minimally engaged in the activity as also illustrated on the video clip. The therapist did not appear to be affected by Joanna’s apparent neutral attitude toward the exercises and activities as a whole. The therapist’s emphasis was placed on Joanna’s completion of the exercises and not necessarily on the feelings or experiences of the exercises.

**Therapeutic Dance/Movement Sessions - Joanna**

The dance/movement sessions provided Joanna with a range of opportunities to connect with her environment through Outer Spatial Intent thereby providing her with meaningfulness as observed through her Function and Expression. As a result of the activities, Joanna also exhibited a wider range of BESS components than during the PT sessions. These included Three-Dimensionality, Breath Support, Gradated Rotation, Weight Shift, Initiation and Sequencing,
Spatial Intent, Active Weight especially during Shape Flow movements and while moving across the floor, and access to Light Weight observed during the group balloon activity. Two examples follow that evidence Joanna’s abilities to Function and Express herself by connecting with her Outer environment.

During a center floor work activity, it was evident that Joanna had a sense of inner rhythm and outer motivation. This was especially clear when we were moving across the floor in time with the music, which she chose. Joanna used the music as an outer motivation to activate herself in Space with Rhythm Phrasing. I mirrored Joanna’s phrasing and provided kinesthetic empathy leading Joanna to increase her right arm swing, which was weakened as a result of her injury. Joanna experienced and exhibited a wide range of BESS components resulting from the activity and intervention, as illustrated in the video clip (J–DM–1).

Another group activity involved volleying a balloon back and forth to each other while in a circular formation. Joanna became instantaneously engaged in the activity. Her Quick Time and Impulsive Phrasing diminished and became more Sustained with Even Phrasing. At the same time, my Even Phrasing and Sustained Time diminished and became more Impulsive with Quick Time. We appeared to exchange each other’s Effort-Life, which maintained the group’s Effort-Life balance (seen in the video clip for Roger – R-DM-3). Joanna used Direct Space and Whole Body organization to hit the balloon with great precision using Directional Arm Movements to bridge to others. Joanna used Three-Dimensional movement and Gradated Rotation during this activity as well. When I asked Joanna to teach us how to hit the balloon with such skill, she stated with a big smile, “you don’t have the skills.” Everyone in the group laughed as we
continued with the activity. At one point, Joanna became our teacher assisting us with learning to hit the balloon with our head. This activity is illustrated in the video clip (J-DM-1.1).

The activity provided the opportunity for everyone to connect with themselves and to one another and to be Functional and Expressive during the activity in their own way, while also balancing Mobility and Stability, Exertion and Recuperation, and Whole Body integration, which made the activity meaningful.

Threaded throughout the activities were the use of Movement Themes and Whole Body organization and integration.

Joanna’s demonstration of a wide range of BESS was evident during the therapeutic dance/movement sessions as well as a sense of balance between Whole/Part, Function/Expression, Inner/Outer, Mobility/ Stability, Exertion/Recuperation.

During both therapeutic interventions, Cole was very verbally interactive with both therapists and others within the group dance/movement setting. His consistent movement patterns included Vertical Stress upward when standing, Lateral tilt when walking, access to Spinal Connection, Grounding and Core Support, and Initiation and Sequencing. Cole’s Effort-Life included Light Weight in his Upper Body and Strong Weight when walking and stomping his feet; Sustained Time with observable Quickness in his upper body, a range of Bound and Free Flow when in Passive Weight with his Upper Body; Direct Space, and Impulsive Phrasing.
Table 4.3

Case Study 2 – Cole and the Physical Therapists Movement Patterns

<table>
<thead>
<tr>
<th></th>
<th>Cole</th>
<th>Physical Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Vertical stress upward when standing; Lateral tilt when walking; Aspects of BF: Access to Spinal Connection and Grounding and Core Support; Initiation and Sequencing</td>
<td>Body Attitude was Neutral with Body Stance fluctuating between narrow and wide with arms fluctuating between folded in front of torso and down to sides; fluctuating Pin and Wall Shaped Still Forms; Aspects of BF: All Aspects of BF</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Weight: Light especially in upper body; Strong especially with feet when walking and stomping feet; Time: Sustained; Quick more in upper body; Flow: Bound and Free more when in Passive Weight with Upper Body especially arms; Space: Direct; Phrasing: Impulsive</td>
<td>Time: Quick with Some aspects of Sustainment; Flow: Bound; Phrasing: Short, Impulsive, and Impactive</td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>No significant observations noted</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>No significant observations noted</td>
<td>Shape Flow; Shaping; Directional Movements</td>
</tr>
</tbody>
</table>

Table 4.4

Case Study 2 – Cole and the Movement Therapist’s Movement Patterns

<table>
<thead>
<tr>
<th></th>
<th>Cole</th>
<th>Movement Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Vertical stress upward when standing; Lateral tilt when walking; Aspects of BF: Access to Spinal Connection and Grounding and Core Support; Initiation and Sequencing; Weight Shift, Gradated Rotation, Spatial Intent</td>
<td>Body Attitude: Neutral with Body Stance fluctuating between narrow and wide with neutral legs; head tilted forward in Sagittal Plane; arms slightly Retreating; mostly Neutral stress with some forward Sagittal stress; Aspects of BF: All aspects of BF</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Weight: Light especially in upper body; Strong especially with feet when moving across the floor and stomping feet; Time: Sustained; Quick more in upper body; Flow: Bound; Free when in Passive Weight with Upper Body especially arms; Space: Direct; Phrasing: Impulsive</td>
<td>Time: Sustained; Weight: Light; Flow: Bound; Space: Direct; Phrasing: Long, Even</td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>Three-Dimensional</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Shape Flow Movement</td>
<td>Shape Flow; Shaping; Arc-Like Directional Movements</td>
</tr>
</tbody>
</table>

Physical Therapy Sessions - Cole

Cole was verbally interactive and enjoyed engaging in conversation, when permitted, during the PT sessions. His interaction assisted the physical therapist with conversation and provided a sense of connection between the two, unlike Joanna, who was less verbal and less interactive during her physical therapy sessions. Cole participated in the PT sessions which focused on ambulation, lower extremity stretching exercises of the calves, hamstrings, and adductor muscles and strengthening exercises for the hip abductors and extensors, and knee
flexion-extension and ankle muscles. Exercises were performed in discrete units from a single joint action perspective in a seated position. Cole also worked on upper extremity strengthening exercises involving raising his arms in Space touching each other in upward Vertical position and then back down to the sides again, repeating the activity 10 times. The physical therapist completed the exercises and activities with Cole approximately 60% of the time. Other times, the therapist observed his exercise performance to ensure his safety and accuracy of the activities completed. It was observed that Cole’s Sustained Time appeared to influence the therapist’s tendency for Quick Time on two or three occasions resulting in the therapist having diminished Quick Time allowing Cole to indulge and take his time when completing a task. An example of this interaction was when Cole, with the assistance of his walker, and the therapist were walking across the floor. Cole was attempting to place his left hand on the walker’s left break as they turned around to walk back to the other side of the room. Cole stopped to grasp onto his left brake before mobilizing to the other side of the room. During this pause, the therapist, who was standing in back of Cole, accessed Sustained Time which allowed Cole to focus and attend to accessing the brake on his walker. The video clip illustrates the incident (Cole-PT-2).

Since the specialization of PT does not focus on the expressive aspect of an individual, the therapist was not able to take advantage of or possibly acknowledge Cole’s storytelling ability as a strength area to explore expressive ways of integrating creative movement into the physical therapy sessions. This was evident when using LMA as an observational tool during the study.
**Therapeutic Dance/Movement Sessions - Cole**

The dance/movement sessions provided Cole with a range of opportunities to express and explore his storytelling abilities in creative ways. As a result of the activities, Cole, as observed with Joanna, exhibited a wider range of BESS components than during the PT sessions. In addition to being verbally engaging, Cole exhibited a wider range of Effort-Life during the dance/movement sessions as well as Weight Shift, Gradated Rotation, and Spatial Intent and Three-Dimensionality. Aspects of Shape were also observed with Cole during the intervention. These features were especially evident during center floor activities.

Cole was interested in drawing and creating movement through imagery. As a result, one of the sessions was devoted to drawing an image and expressing the image through movement. Cole’s storytelling ability provided him with a creative and expressive outlet. The video clip (Cole-DM-2) illustrates Cole performing his movement piece after he drew an image which he named the “Pillsbury Dough Boy.” He chose slow, melodic music to perform his movement phrase and while sitting in a chair up against the wall, Cole performed his phrase with his Upper Body Rising and Sinking in the Vertical Dimension, Spreading and Enclosing in the Horizontal Dimension while using Gradated Rotation, Spinal Connection, and Grounding. He moved from Core to Distal and back to Core again. His choice of music connected so exquisitely with his movements. The group attended to his performance as he presented a beautiful movement phrase.

The activity provided an opportunity for Cole to connect with his Inner self, bridge to his Outer self, be creative in thought, and feel and sense an integrative process.
During both interventions, Roger demonstrated consistent aspects of Body Attitude with Tetrahedral Spatial Form, active weight, head tilted forward in the Sagittal Plane and concave chest. Aspects of BF included Dynamic Alignment; Weight Shift, Core and Breath Support. Effort-Life consisted of Quick Time, Free Flow, Direct Space and Impulsive and Swing Phrasing. Roger’s aspects of Shape qualities demonstrated his ability to connect with himself and with his environment simultaneously as seen during both therapeutic interventions.

Table 4.5

**Case Study 3 – Roger and the Physical Therapists Movement Patterns**

<table>
<thead>
<tr>
<th></th>
<th>Roger</th>
<th>Physical Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Tetrahedral Spatial Form; Postural Configuration of head tilted forward in the Sagittal Plane and concave chest; Active Weight Aspects of BF: Dynamic Alignment; Weight Shift, Core and Breath Support</td>
<td>Body Attitude was Neutral with Body Stance fluctuating between narrow and wide with arms fluctuating between folded in front of torso and down to sides; fluctuating Pin and Wall Shaped Still Forms</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Time: Quick&lt;br&gt;Flow: Free&lt;br&gt;Phrasing: Swing and Impulsive</td>
<td>Time: Quick&lt;br&gt;Flow: Bound&lt;br&gt;Phrasing: Short, Impulsive, and Impactive</td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>No significant observations noted</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Shape Flow Movement</td>
<td>Shape Flow&lt;br&gt;Shaping&lt;br&gt;Directional Movements</td>
</tr>
</tbody>
</table>

Table 4.6

**Case Study 3 – Roger and the Movement Therapist’s Movement Patterns**

<table>
<thead>
<tr>
<th></th>
<th>Roger</th>
<th>Movement Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Tetrahedral Spatial Form; Postural Configuration of head tilted forward in the Sagittal Plane and concave chest; Active Weight Aspects of BF: Dynamic Alignment; Weight Shift, Core and Breath Support; Gradated Rotation; Initiation and Sequencing; Spatial Intent</td>
<td>Body Attitude: Neutral with Body Stance fluctuating between narrow and wide with neutral legs; head tilted forward in Sagittal Plane; arms slightly Retreating; mostly Neutral stress with some forward Sagittal stress</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Time: Quick&lt;br&gt;Flow: Free&lt;br&gt;Space: Direct&lt;br&gt;Phrasing: Impulsive; Swing</td>
<td>Time: Sustained&lt;br&gt;Weight: Light&lt;br&gt;Flow: Bound&lt;br&gt;Space: Direct&lt;br&gt;Phrasing: Long, Even</td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>Three-Dimensional</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Shape Flow Movement&lt;br&gt;Shaping - Spreading</td>
<td>Shape Flow&lt;br&gt;Shaping&lt;br&gt;Arc-Like Directional Movements</td>
</tr>
</tbody>
</table>

**Physical Therapy Sessions - Roger**

In observing Roger, it was evident that his Functional and Expressive strategy for being in his environment depended upon using Free Flow for Mobility. This quality enabled Roger to organize himself to mobilize. During the PT sessions, the therapist observed Roger’s Free Flow
as a safety issue with his unsteady gait, and added that she was fearful he would fall if he did not stabilize himself. As a result, one of the primary PT goals for Roger was to walk slower with his legs in parallel position rather than externally rotated to become more stable. The physical therapist focused on having Roger walk slower with Bound Flow, legs in parallel position, and head up rather than looking down at the ground when ambulating as seen in the video clip (R-PT-3). During one of the PT sessions, Roger commented that when he walked slower, he tended to lose his balance. The physical therapist encouraged him to continue practicing the techniques she developed for Roger to become more stable. Roger was attempting to let the therapist know how he felt about the experience. Understandably, from the physical therapist’s biomechanical perspective, it would appear that Roger had an unstable gait. However, observation from a LMA perspective provided information regarding how Roger’s Free Flow was assisting him in his environment. The physical therapist’s role was to contain Roger’s Free Flow as she observed from her biomechanical approach that this was causing him to be unsafe in his environment and at risk for falling. From an LMA perspective, I observed Roger’s Free Flow as his mechanism for Function and Expression within his environment.

**Therapeutic Dance/Movement Sessions - Roger**

As previously stated, Roger’s Functional and Expressive strategy for being in his environment depended upon his ability to access Free Flow to mobilize. Roger was provided with the opportunities to experience the balance between Mobility and Stability using Free and Bound Flow during several dance/movement activities. For example, during the group balloon activity, Roger demonstrated his ability to balance Mobility and Stability using Bound and Free
Flow to organize his body to volley the balloon back and forth with his hands and head. Roger exhibited Whole Body organization during the balloon activity, as demonstrated in the video clip (R-DM-3). Roger and Joanna began to volley the balloon back and forth to each other creating a rhythm between the two. When Joanna hit the balloon with her head directing it toward Roger, he in turn organized his Whole Body enabling him to hit the balloon with his head. The two volleyed back and forth several times then we all came back into the circle and each attempted to hit the balloon with our head. Roger and Joanna taught us how to accomplish this. I then referred to the two of them as the famous soccer player, by saying “here we have Pele one and Pele two.” The whole group laughed as we continued to experience the balance between the Movement Themes within the activity.

Roger experienced the balance between Mobility and Stability and demonstrated his ability to access the range from Free to Bound Flow when the need arose. As a result of the types of activities, Roger also exhibited a wider range of BESS components during the dance/movement sessions than during the PT sessions. These included Active Weight, Gradated Rotation, Initiation and Sequencing, Spatial Intent, and Three-Dimensionality which, as seen with all five clients, provides the most integrative use of one’s kinesphere with the widest range of Shaping possibilities, and therefore, the principal functional and expressive continuum for greatest mobility (Bartenieff & Lewis, 1980).

The dance/movement intervention presented Roger with an opportunity to explore and experience the delicate balance between Mobility and Stability and the interplay between Bound and Free Flow in his own unique way, with Joanna’s assistance.
David’s baseline movement patterns were similar during both interventions as was seen with the previous cases. His aspects of Body Attitude included Weight in pelvis but minimal weight in feet, aspects of BF included Core and Breath Support with Dynamic Alignment more evident when sitting. David’s effort qualities consisted of Sustained Time, Bound Flow, Direct Space and Impulsive and Swing Phrasing. David also exhibited Shape Flow Movement during both interventions.

Table 4.7

**Case Study 4 – David and the Physical Therapists Movement Patterns**

<table>
<thead>
<tr>
<th></th>
<th>David</th>
<th>Physical Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Weight in pelvis but no weight in feet; active posturing when sitting, not as apparent when standing due to passive weight in feet</td>
<td>Body Attitude was Neutral with Body Stance fluctuating between narrow and wide with arms fluctuating between folded in front of torso and down to sides; fluctuating Pin and Wall Shaped Still Forms</td>
</tr>
<tr>
<td></td>
<td>Aspects of BF: Core and Breath Support; Dynamic Alignment - more evident when sitting</td>
<td>Aspects of BF: All Aspects of BF</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Time: Sustained; Quickness observed with facial expressions</td>
<td>Time: Quick; Flow: Bound; Phrasing: Short, Impulsive, and Impactive</td>
</tr>
<tr>
<td></td>
<td>Flow: Bound; Space: Direct; Effort Phrasing: Impulsive; Swing</td>
<td></td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>No significant observations noted</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Shape Flow Movement: some access</td>
<td>Shape Flow; Shaping; Directional Movements</td>
</tr>
</tbody>
</table>

Table 4.8

**Case Study 4 – David and the Movement Therapist’s Movement Patterns**

<table>
<thead>
<tr>
<th></th>
<th>David</th>
<th>Movement Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body</strong></td>
<td>Aspects of Body Attitude: Weight in pelvis but minimal weight in feet; active Vertical posturing when sitting and standing at the barre</td>
<td>Body Attitude: Neutral with Body Stance fluctuating between narrow and wide with neutral legs; head tilted forward in Sagittal Plane; arms slightly Retreating; mostly Neutral stress with some forward Sagittal stress</td>
</tr>
<tr>
<td></td>
<td>Aspects of BF: Core and Breath Support; Graded Rotation; Dynamic Alignment more evident when sitting; Effort and Spatial Intent</td>
<td>Aspects of BF: All aspects of BF</td>
</tr>
<tr>
<td><strong>Effort</strong></td>
<td>Time: Sustained; Flow: Bound; Space: Direct; Effort Phrasing: Impulsive; Swing</td>
<td>Time: Sustained; Weight: Light; Flow: Bound; Space: Direct; Phrasing: Long, Even</td>
</tr>
<tr>
<td><strong>Space</strong></td>
<td>Three-Dimensional</td>
<td>Three-Dimensional Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Shape Flow Movement</td>
<td>Shape Flow; Shaping; Arc-Like Directional Movements</td>
</tr>
</tbody>
</table>

**Physical Therapy Sessions - David**

During the physical therapy sessions, David exhibited a range of Effort-Life and appeared to have access to his Weight while sitting but not when standing due to lack of weight.
in his feet. PT sessions focused on balance and mobility and stretching exercises of the calves, hamstrings, and adductor muscles. Strengthening exercises focused on increasing balance and mobility using the wobble balance board, treadmill, and physio-ball.

As also observed with the other clients, the physical therapist tended to provide the clients with her perception of how they performed exercises and activities but did not ask for their feedback regarding their perception or their experience about a given task. This lack of interaction and exchange appeared to provide a medical model approach - prescriptive. An example of this was seen when the therapist asked David to perform sideward leg extensions five times on each leg while standing. After David completed this task, the therapist stated that he accomplished the task successfully 2 out of 5 times as seen in the video clip (D-PT-4).

It was assumed that David understood what the therapist meant by her comment. She provided him with verbal instructions however she did not demonstrate the task beforehand. When the therapist did present an activity to David through demonstration, David was better able to embody and accomplish the activity as perceived by the therapist’s commenting, “good job,” and “you did a good job.” As previously stated, the PT modality is designed to improve individual’s movement from a biomechanical perspective analyzing single joint actions and muscle activities which are not experienced as they are physiologically analyzed (Davis, 1990). To provide individuals with a Whole Body, holistic-integrative approach, the physical therapist would also need to address the experience as the movement as dance/movement does.
Therapeutic Dance/Movement Sessions - David

In addition to the BESS components exhibited during the PT sessions, David also exhibited Graduated Rotation, Effort and Spatial Intent, and Three-Dimensional movement during the dance/movement sessions.

The sessions afforded David (as well as the others in the group) the opportunity to express his intellectual and expressive self through a variety of movement activities.

For example, during the creative movement activity, David is seen in the video clip (D-DM-4) standing in front of his chair performing his movement piece. David, similar to Cole, performed a movement phrase based on the image he drew beforehand. David performed the phrase using his Lower Body to stabilize his mobile Upper Body as he danced like a Seagull. During his phrase, David stated he was a bird, then he clarified that he was a Seagull soaring in the sky. David was moving through Space by Spreading his arms in the Horizontal and Vertical Dimension and using his Core and Breath Support to Ground himself as he appeared to fly like a Seagull with Whole Body integration. The music he chose was slow, melodic music similar to what Cole used for his movement phrase. After everyone completed their movement phrase, we talked about their experience of the movement piece. David acknowledged that as he was performing his dance, he felt free to be himself, free to move, and free from his limitations resulting from his stroke. He added that the experience presented him with a sense of expressing himself that words could not.

Another example where David experienced Whole Body integration and a balance between Function and Expression was when we moved across the floor in beat with the music working on Spinal Rotation through arm swings. I walked beside David mirroring his movements with his Effort-Life which produced a Swing type Phrasing. David began teaching
me the movement sequences he was performing as we moved across the floor. After I was able to mirror his Effort-Life through his movement patterns, he said “you’ve got it.” I replied by saying “thanks for teaching me.” We continued the movement sequence side by side to the other end of the room.

The same overriding themes were apparent with David as were observed with the other cases.

Table 4.9

Case Study 5 – Connie and the Physical Therapists Movement Patterns

<table>
<thead>
<tr>
<th></th>
<th>Connie</th>
<th>Physical Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>Aspects of Body Attitude – Concave torso</td>
<td>Body Attitude was Neutral with Body Stance fluctuating between</td>
</tr>
<tr>
<td></td>
<td>Aspects of BF: Contained Core Support with</td>
<td>narrow and wide with arms fluctuating between folded in front</td>
</tr>
<tr>
<td></td>
<td>little access to Core; little access to</td>
<td>of torso and down to sides; fluctuating Pin and Wall Shaped</td>
</tr>
<tr>
<td></td>
<td>Weight and Grounding</td>
<td>Still Forms; Aspects of BF: All Aspects of BF</td>
</tr>
<tr>
<td>Effort</td>
<td>Time: Sustained</td>
<td>Time: Quick</td>
</tr>
<tr>
<td></td>
<td>Flow: Bound as an overriding theme</td>
<td>Flow: Bound</td>
</tr>
<tr>
<td></td>
<td>Space: Direct</td>
<td>Phrasing: Short, Impulsive, and Impactive</td>
</tr>
<tr>
<td></td>
<td>Phrasing: Even</td>
<td></td>
</tr>
<tr>
<td>Space</td>
<td>No significant observations noted</td>
<td>Three-Dimensional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reach Space: Near, Mid and Far</td>
</tr>
<tr>
<td>Shape</td>
<td>No significant observations noted</td>
<td>Shape Flow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shaping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Directional Movements</td>
</tr>
</tbody>
</table>

As seen with the previous four cases, Connie’s baseline movement patterns were similar during both interventions. She demonstrated consistent aspect of Body Attitude with Concave Torso. Her Effort qualities included Sustained Time, Bound Flow as an overriding theme, Direct Space, and Even Phrasing.

Table 4.10

Case Study 5 - Connie and the Movement Therapist’s Movement Patterns

<table>
<thead>
<tr>
<th></th>
<th>Connie</th>
<th>Movement Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>Aspects of Body Attitude – Concave torso</td>
<td>Body Attitude: Neutral with Body Stance fluctuating between</td>
</tr>
<tr>
<td></td>
<td>Aspects of BF: Contained Core Support with</td>
<td>narrow and wide with neutral legs; head tilted forward in</td>
</tr>
<tr>
<td></td>
<td>access to Core; access to Weight and</td>
<td>Saggital Plane; arms slightly Retreating; mostly Neutral stress</td>
</tr>
<tr>
<td></td>
<td>Grounding through hands; Gradated Rotation;</td>
<td>with some forward Saggital stress</td>
</tr>
<tr>
<td></td>
<td>Spatial Intent</td>
<td>Aspects of BF: All aspects of BF</td>
</tr>
<tr>
<td>Effort</td>
<td>Time: Sustained</td>
<td>Time: Sustained</td>
</tr>
<tr>
<td></td>
<td>Flow: Bound</td>
<td>Weight: Light</td>
</tr>
<tr>
<td></td>
<td>Space: Direct</td>
<td>Flow: Bound</td>
</tr>
<tr>
<td></td>
<td>Phrasing: Even</td>
<td>Space: Direct</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phrasing: Long, Even</td>
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<td>Reach Space: Near, Mid and Far</td>
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<td>Shape</td>
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<td>Arc-Like Directional Movements</td>
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**Physical Therapy Sessions - Connie**

The fundamental issue with Connie was her need for Grounding. Grounding provides one with the ability to sense oneself with Weight through accessing Core Support. Lack of Grounding gives the impression of disembodiment.

During the PT sessions, the physical therapist either did not appear to observe or acknowledge the need for Connie to find Grounding. Again, the PT modality does not lend itself to this type of observation. Its observation and analysis is based on the biomechanical aspects of single joint actions and muscles. LMA does support this type of observation and analysis. As a result, the therapist did not address or assist Connie with access to Grounding and therefore the exercises and activities performed during the PT sessions had minimal impact unless Connie was Grounded during a particular activity.

An example where Connie was able to access Grounding was evidenced during a standing leg stretching exercise when the physical therapist had Connie pressing both hands up against a wall with one leg in back of the other to stretch the back of each leg. During the exercise, it was clear that Connie had Grounded herself by pushing against the wall – against the earth – to support her weight. By pressing her body against a stable weighted support, Connie organized her Whole body, accessed Grounding through Core Support and used Breath Support to complete the task. Connie was sensing herself through Grounding. She commented that she felt the stretch; she was sensing and feeling her whole body connections as seen in the video clip (Connie-PT-5). The other exercises and activities did not accommodate for Connie’s need for Grounding and therefore, had minimal impact on her overall. It was evident that Connie demonstrated the ability to connect with herself when given a Whole Body postural activity with
Dynamic Alignment and Grounding to support herself. Accessing Weight provided Connie access to her sense of self.

Connie’s access to Weight and Grounding was not addressed during the physical therapy sessions which seemed to be Connie’s most significant issue with regard to sensing herself to connect with her environment.

**Dance/Movement Intervention - Connie**

In addition to the BESS components exhibited during the PT sessions, Connie exhibited Contained Core Support with access to Core; access to Weight and Grounding through her hands; Gradated Rotation; Spatial Intent, and Three-Dimensional movement during the dance/movement sessions.

As stated during the PT sessions, once Connie Grounded herself she was able to participate in Whole Body activities and connect with her environment. It was observed that Connie gained access to Grounding and Core Support through her hands. She was also able to sense Grounding when I provided her with tactile stimulation. For example, during the dance/movement seated warm-ups, Connie used her hands to hold onto her chair as she performed stretches. Tactile touch enabled her to connect with a stable object providing her weight to press against to access Grounding and perform the exercises with Whole Body connection using core and Breath Support as illustrated in the video clip (Connie-DM-5). During standing stretches, Connie held onto the ballet barre for support in the same manner as when sitting, with the same result of Whole Body connectivity. During the standing exercises, Connie also exhibited Shape Flow Movements when adjusting to the barre in relation to herself –
Connie, as with the previous cases, experienced a wider range of BESS components through experiencing several group activities. For example, Connie accessed Gradated Rotation, Spatial Intent, and Three-Dimensional movement during Tai-Chi, and while moving across the floor swinging her arms from side to side. As she completed this activity, Cole said, “that was good ‘Connie’.” Connie responded with a huge smile and said “thank you.”

**Impressions of Physical Therapy and Dance/Movement Interventions**

From an individual LMA/BESS perspective, both therapists shared a similar Body Attitude, aspects of Bartenieff Fundamentals, Bound Flow, fluctuating between Pin and Wall Shaped Still Forms, and Shaping through touch.

As for differences between the two therapists, I tended toward Sustained Time, Light Weight, Direct Space, and Long, Even Phrasing while the physical therapist tended toward Quick Time, Active Weight, and Short, Impulsive and Impactive Phrasing. My Effort-Life contained indulging elements and the physical therapist’s included condensing elements. The physical therapist's Body Stance was in the Vertical Plane, mine in the Forward Sagittal Plane. The physical therapist’s Shaping was more Gestural from a functional perspective, while my Shaping was Postural with a tendency to carve and mold my body around clients.
Physical Therapy Intervention

The physical therapist provided each client with high quality physical therapy services during the study. She exhibited a genuine care for all five clients and remained actively engaged in the study and with the clients throughout the five week videotaping sessions.

As described above, the physical therapist’s movement patterns remained fairly constant throughout her interactions across all five cases. Her Body Attitude was Neutral in the Vertical Dimension. She tended toward condensing elements with Quick Time and Bound Flow, and had Short and Impulsive, Impactive Phrasing. This was consistent with her fluctuating Pin and Wall Shaped Still Forms. Shaping qualities were evident when she used touch especially during the assessment process to assist clients with single joint action movements. Her Shaping tended to be Gestural from a functional perspective. She also used Arc-like and Spoke-like Directional movement to bridge to clients. These patterns may be serving the physical therapist well given the field she is in, especially with the healthcare insurance industry’s stringent regulations maintaining that continued rehabilitation services are dependent upon a client’s ability to make measurable gains and functional outcomes.

In all cases, the physical therapist developed the client’s physical therapy goals upon completion of the assessment. In general, there lacked a feedback loop regarding interaction between client and therapist regarding how the client was feeling about a certain exercise or activity. She did ask if an individual wanted to rest (Exertion/Recuperation).

The PT intervention is designed to focus on the biomechanical aspects of single joint actions and muscle activities which are not experienced as they are physiologically analyzed (Davis, 1990). LMA observation and language articulates the functional and expressive components of movement.

The physical therapist focused on specific body parts that were diagnosed as client problem areas. Her belief was that integration would occur by focusing on the specific body parts causing clients problems. She tended to focus on Stability as a means for Mobility, which seems to be representative of PT’s traditional medical model approach.

Dance/Movement Intervention

My baseline movement patterns remained fairly constant throughout the dance/movement sessions however, my BESS range fluctuated depending upon the interaction between the client, the client and group’s needs, and the activity being performed. My overriding Body Attitude was
Neutral with Body Stance fluctuating between narrow and wide with neutral legs. I tended toward indulging elements of Sustained Time, and Light Weight. I tended to use Bound Flow to progress the sessions forward rather than using Quick Time, and exhibited Long Even Phrasing. Shaping qualities were evident especially when I used touch to support clients during certain exercises and activities. I tended to Shape my whole body to theirs using Carving and Molding aspects of Shaping during these times providing them with touch and a sense of connection and interrelatedness. My Shaping was Postural from a Function/Expression perspective. I tended to provide a great deal of verbal instruction and demonstration of various exercises and activities and solicited feedback from clients regarding their feelings and experiences and choices regarding exercises and activities. My Sustained Time and Long Even Phrasing seemed to assist clients with their ability to Sustain and indulge in Time with Longer Even Phrasing. The music supported a shared rhythm, created movement and dynamic Effort-Life variation and promoted interaction and a sense of interrelatedness.

The dance/movement sessions progressed from a Whole/Part and Inner/Outer perspective promoting a sense of mind-body integration through a bodily-kinesthetic approach. The fundamental LMA features that were identified as part of the dynamics of a therapeutic dance/movement intervention included the BESS components of Core/Breath Support and Grounding, Aspects of Shape, and Effort-Life, and the Movement Themes: Whole/Part, Inner/Outer, Function/Expression, Exertion/Recuperation, and Mobility/Stability.

The clients exhibited a wide range of BESS components during the dance/movement sessions. The content and context of the sessions promoted a wide range of Effort-Life through its creative, expressive, and holistic approach supported within a group setting. In contrast to that of the physical therapy sessions, I focused on exercises promoting Core Support through breathing exercises and assisted clients with sensing themselves as evidenced by client’s greater range of access to Core and Breath Support.

The warm-up provided a sense of connection with one another while focusing on body organization through breath support (Inner). The center floor work focused on emotional and imaginative expression through a variety of movement activities incorporating the BESS components and movement themes listed above as well as Gradated Rotation, Spatial Intent, Sequencing, and Rhythm Phrasing. The cool-down re-focused on the Inner connections in relation to the Outer environment and served as a means to bring the group back together and to
where it began with breath supported movement and a sense of closure with a completed session phrase with a progressive beginning (Inner), middle (Outer), and an end (Inner/Outer).

The dance/movement intervention fostered the development of the whole integrative person sensing and experiencing his/her Inner and Outer world.

Summary

Chapter 4 began with an introduction to the five clients within the study. Subsequent was an overview of the physical therapy and dance/movement interventions followed by a summary of the findings, tables representing clients and therapist’s movement patterns, examples to augment my findings, and summary impressions of the two therapeutic interventions. Findings revealed that a dance/movement intervention promotes a holistic, whole body integrative approach for the individuals with brain injuries within this study.

Discussed in chapter 5 is a summary of the study, conclusions based on the findings, and recommendations for future research and practice.
CHAPTER 5
SUMMARY AND IMPLICATIONS

Introduction

This study responds to a societal, professional, and personal call. In societal terms, due to the improvement of technological advances and quicker medical responses, an increasing number of individuals are surviving brain injuries, whether from motor vehicle accidents, gunshot wounds to the head, falls, or acquired from strokes, aneurysms, or brain tumors. Addressing the needs of individuals with brain injuries is a growing specialty area within the professional field of rehabilitative services, which has emerged over the past twenty-five years through the advancement of medicine’s ability to save lives.

An effort to determine what intervention strategies are working with what success is receiving increasing attention. Major conferences around this theme held during 1998iii, and more recently in 2006iv, have discerned and illuminated several issues: the need for well-designed and controlled studies regarding the effectiveness of rehabilitation interventions; the development and study of innovative rehabilitation interventions; validation of generic health-related quality of life assessment instruments; the development and validation of specific brain injury instruments; the relationship between the pathophysiology and the effectiveness of different interventions; and the effectiveness of community-based rehabilitation services.

Conventional brain injury rehabilitation services have focused on cognitive rehabilitation, and physical, occupational, and speech therapies. Therapeutic dance/movement has not been an integral part of the core brain injury rehabilitation services; however, I have observed its potential as an additional fundamental service. As a result, a systematic study of this approach was warranted.

I have been teaching dance/movement to individuals with brain injuries for thirteen years and have received feedback from clients and family members regarding the healing benefit. My position is that people with brain injuries can teach us how we might help them if we are able to

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listen with all our being and learn. My vision for developing the dance/movement intervention was to provide a holistic and integrative approach to rehabilitation for these individuals. By integrating physical, cognitive, and psychosocial experiences within a process oriented intervention, the hope was to facilitate the integration of their “old self” with their “new self” after a brain injury.

Only one study in the literature has focused on augmenting physical therapy (PT) with dance/movement (Hecox et al., 1976), and none to the author’s knowledge has systematically compared a PT intervention with a dance/movement intervention in brain injury rehabilitation. Moreover, four dance/movement professionals (all work in universities; two of whom are researchers on the Board of the American Dance Therapy Association, one an editor of a peer reviewed dance journal, and one the author of the only literature -two position pieces- that have addressed the benefits of dance/movement therapy for individuals with brain injuries) have reinforced and endorsed the need for a systematic study and affirmed the need for my conduct of this study.

The purpose of this qualitative study was to better understand the dynamics of a therapeutic dance/movement intervention for individuals with brain injuries by comparing it to a conventional physical therapy intervention. Data were collected from five individuals with brain injuries as they participated in five weekly dance/movement sessions and five weekly physical therapy sessions. Laban Movement Analysis (LMA) was used as the observation and analytic tool for the purpose of elucidating similarities and differences between the two interventions through the experience of the five case studies.

Two questions guided the inquiry: (a) What are the similarities and differences between a physical therapy intervention and a dance/movement intervention? and (b) What are the dynamics of a therapeutic dance/movement intervention?

This chapter provides answers to the research questions, offers conclusions to the study, and generates recommendations for future research and practice.

**Summary of Findings and Conclusions**

*Research Question 1 – What are the similarities and differences between a physical therapy intervention and a dance/movement intervention?*

Findings revealed that the physical therapy intervention focused specifically on body level connectivity and single joint action movement from a Body perspective. In comparison, the
dance/movement intervention focused on the spectrum of Body, Effort, Space, and Shape (BESS) components by incorporating the dynamics of Breath/Core Support and Grounding, Effort-Life, Spatial Intent, and Aspects of Shape in harmony with the Movement Themes: Whole/Part, Inner/Outer, Function/Expression, Exertion/Recuperation, and Mobility/Stability. As a result, the dance/movement intervention imparted an integrative mind-body approach to learning about one’s Inner and Outer self and one’s ability to cope with and connect to one’s environment. Dance/movement appeared to offer an integrative approach to rehabilitation.

Both therapeutic interventions incorporated repetitive practice of movements, such as leg lifts and arm extensions. To promote an active dynamic to the experience, the dance/movement intervention incorporated the use of music to vary the rhythm, tempo, and style of the movements. In comparison, the physical therapy intervention did not use music to support the same process. The dance/movement intervention employed and promoted a creative and expressive approach to assist clients with learning their own capabilities and limitations. In comparison, the physical therapy intervention focused on client limitations and prescribed exercises and activities executed in a specific manner to improve strength and mobility from a functional perspective. The dance/movement intervention encouraged client’s movement experiences from their own functional and expressive Body, Effort, Shape, and Space (BESS) perspective. Creative and expressive movement activities promoted the client’s ability to discover what they could do with an awareness of how they felt about their experiences.

The specialization of physical therapy lends itself to the observation, analysis, and treatment of the biomechanical aspects of movement from a functional single joint action and muscle activity perspective. In comparison, the dance/movement intervention observes, analyzes, and treats individuals from a whole body, functional and expressive perspective.

To further this claim, Hackney (2002) argues that movement practitioners in the healthcare field often find themselves identifying with one end of the Function-Expression polarity. She states that conventional physical therapy, for example, helps strengthen and stretch specific muscle groups. From this perspective, the goal is to improve strength and flexibility. One’s personal experience is not a component of the intervention.

North (1995) discussed the importance of dance/movement’s role in the health care field and stressed its uniqueness in rehabilitation:
Let us not lose our faith in the therapeutic value of the art, our own unique contribution in the therapeutic field. This includes our understanding of the aesthetics of dance, the structure and creativity of making dance, the underlying skills of movement understanding, the observation, analysis, diagnosis and treatment through moving. (p. 12)

Using a bodily-kinesthetic approach, dance/movement integrates physical, cognitive, and psychosocial experiences within a process oriented intervention promoting a holistic approach to exploring and learning about the ‘new self’ post brain injury; a primary component to address from an integrative perspective after an individual has sustained a brain injury. PT as a therapeutic modality in brain injury rehabilitation does not provide this type of holistic, bodily-kinesthetic approach.

The profundity of dance/movement is in the Simplicity/Complexity of its intervention in conjunction with the movement therapist’s access to various ways of knowing such as attuning to one’s body movements and patterns in relation to others.

Figure 5.1 illustrates the dance/movement profile in LMA terms which includes the Movement Themes: Whole/Part, Inner/Outer, Function/Expression, Exertion/Recuperation, and Mobility/Stability, and the BESS components of Breath and Core Support and Grounding, Aspects of Shape, and Effort-Life. Figure 5.2 illustrates the physical therapy profile in LMA terms which includes Body Level Connectivity, Single Joint Actions, Exertion/Recuperation, Function, and Stability for Mobility. Important to realize for both interventions is that each of these features are interrelated and are supported by one another.

The present study contributes both to the literature as well to the brain injury rehabilitation field by actually comparing similarities and differences. To my knowledge, this is the first study that has systematically investigated and compared these two interventions. The physical therapy intervention is an important treatment modality in brain injury rehabilitation by assessing and treating the biomechanical aspects of the body to restore and strengthen functional movement and mobility. The therapist can prescribe specific exercises and activities to improve functioning by concentrating on specific body parts that require restoration. Based on the findings from this study, it would appear that the dance/movement intervention would also be an important treatment modality in brain injury rehabilitation as it complements physical therapy by
integrating the body level connectivity and single joint action movements into its approach combined with the expressive end of function.

Figure 5.1. Profile of a therapeutic dance/movement intervention.

Figure 5.2. Profile of a physical therapy intervention.
Additional studies are warranted. Future studies might focus on conducting both interventions in a group setting, use a different analytic tool, or be initiated by physical therapists.

The dance movement intervention, given its group setting, presented opportunities for a variety of interaction between the clients and between the clients and the movement therapists providing the potential to explore a range of Effort-Life while connecting with others. The physical therapy intervention, given its individual 1:1 focus, presented opportunities for individual attention and interaction allowing each client the opportunity to work on his/her own therapeutic needs.

The remainder of this discussion then focuses exclusively on the dance/movement intervention.

Research Question 2 – What are the dynamics of the dance/movement intervention?

Based on the findings, I learned that my vision for developing a dance/movement intervention was substantiated by this study. I wanted to provide a holistic approach to learning from a bodily-kinesthetic perspective. By viewing conventional physical therapy, I was able to understand the dynamics of the dance/movement intervention on a deeper level. The findings revealed that the intervention provided characteristics that promoted a sense of empowerment, choice, individuality, accommodation, and adaptability. These traits coalesced with LMA’s Movement Themes: Whole/Part, Inner/Outer, Function/Expression, Exertion/Recuperation, and Mobility/Stability. Moreover, I was able to observe specific BESS components that further articulated these characteristics through specific movement pattern differences with the clients during the two interventions. These BESS components included Core and Breath Support and Grounding, Effort-Life, and Aspects of Shape. For example, Core and Breath Support are about sensing oneself through the body’s center and involves the conscious integration for embodied movement. When Connie accessed Core and Breath Support, she was Grounded and thus was able to sense herself through movement. This concept is synonymous to the Movement Theme Inner/Outer.

The dynamics of dance/movement intervention then are multi-faceted. Each individual had his/her own unique movement patterns. As revealed in this study, use of LMA provided an observational and analytic tool to clearly illuminate the intricate and subtle aspects of movement at both a micro and macro level, creating an individualized profile of all five clients, as indicated
in the case of Connie above. A holistic understanding of each individual’s challenges and attributes emerged, which in turn provided practical customization for each client. The dynamics of the intervention is predicated upon the movement therapist’s delicate interplay to facilitate growth and change. Through kinesthetic empathy, the clients and I shared in each other’s kinesphere and at times embodied aspects of each other’s Effort-Life and sense of rhythm creating a mirror image of each other. I used Shaping to connect to the clients especially when using touch to support their movement. This in turn provided aspects of Shaping with the clients. Adapting and yielding to each client’s uniqueness provided opportunities to attune to the client’s needs. The dance/movement intervention facilitated relationships and connections on several levels – a Body level (Inner – sensing self), a Space level (Outer - connecting with environment), and an interaction with others in the group (Inner/Outer). The sessions began with breath supported exercises engaging the relationship with one’s inner being, progressing to relationships with others within the group setting. As client relationships formed, we embraced each other’s Space and their relationship to it and adapted to each other’s unique movement patterns.

The dance/movement intervention promoted experiences to feel and sense the balance and interrelatedness between the Movement Themes in a safe and supportive environment. An awareness of how one uses these themes and in what manner, assisted clients in their ability to transfer this knowledge into their every day lives. Further study of a dance/movement intervention is warranted, however, to investigate and understand it’s efficacy in working with individuals with brain injuries.

Implications for Future Research and Practice

In 1999, the Centers for Disease Control (CDC) estimated that 5.3 million Americans are living with permanent disabilities resulting from a brain injury. This number continues to grow due to continued medical and neurosurgical discoveries in addition to our being in a time of war. The cognitive, physical, and psychosocial changes that occur in an individual after a brain injury are profound, long-term, and often life-long. Brain injury rehabilitation interventions are vital to the cognitive, physical, and psychosocial health and well being of these individuals. Moreover, an individual’s sense of self is often altered requiring an integrative mind-body approach to aid individuals with discovering their sense of self and connection with their environment.

Studies in neurophysiology have revealed that bodily-kinesthetic experiences produce learning that establishes exceptionally strong neural pathways in the brain and that when
individuals participate in this type of learning, the two hemispheres of the brain are simultaneously engaged and produce long term memory (Parente & Hermann, 1996). The neurophysiological literature supports the argument that the mind and body are inter-connected and communicate together to form a unified integrative self and that movement increases bodily-kinesthetic, proprioceptive, tactile, and vestibular reception (Berrol, 1990; Cotterill, 2001). These fundamental sensory-motor functions are critical to the physical, cognitive, and psychosocial restructuring and integration when a brain injury occurs, as they are all inter-related.

Teaching dance/movement promotes “active learning” (Minton, 2003). The active learning model promotes learning from a bodily-kinesthetic perspective. Through this study, I suggest that a deeper sense of learning and self discovery through brain-muscle communication occurs by learning through dance/movement.

It is timely that this study be conducted as there is growing concern regarding the need for efficacious rehabilitative services especially pertaining to quality of life as evidenced by the recent studies presented at the 2006 2nd Federal Interagency Conference on Brain Injury in Bethesda, Maryland. Cicerone (2006) imparts his perspective with regard to this concern:

Improvement in the quality of life is often cited as the ultimate endpoint of rehabilitation after traumatic brain injury. Despite this, quality of life has rarely been assessed as an outcome of rehabilitation, and our knowledge regarding the contributions to quality of life for people who have sustained a TBI is limited. If we are truly concerned with the development and assessment of rehabilitation interventions that improve quality of life after TBI, we may have to seriously question and radically revise some of our current assumptions about the essential aspects of rehabilitation, and our understanding of the concept of quality of life. (p. 93)

Another conference presenter, Dijkers (2006), conducted a literature review regarding scholarly publications on brain injury rehabilitation treatment. His findings revealed that from the 1,679 papers found on the subject, an estimated 70% were published in 2004 with only 14% being scholarly quantitative empirical studies of rehabilitation interventions, with qualitative studies at an even smaller percentage. He concluded:

Most published papers, whether empirical or theoretical in nature, concern diagnosis, prognosis, ethics, costs and other subjects. While clinicians require information on a number of subjects in order to competently discharge their responsibilities, it would seem
that, for an intervention specialization as medical rehabilitation, there is insufficient emphasis on treatment research. Progress in TBI rehabilitation requires a shift in focus, however difficult implementing high-quality intervention research may be. (p. 57)

In 1998, a consensus conference on the rehabilitation of individuals with brain injuries was held at and sponsored in part by the National Institutes of Health in Bethesda, Maryland. The purpose of the two day conference was to provide biomedical researchers and clinician’s information and recommendations regarding effective cognitive and behavioral rehabilitation measures for individuals with brain injuries. Several conclusions and recommendations were presented, two of which specifically relate to this study: a variety of approaches are provided in brain injury rehabilitation most of which employ a conventional medical model; and rehabilitation services limit decision making opportunities by individuals with brain injuries as they do not foster partnerships between the professional and individual thus resulting in a lack of client participation in goal development. Although these recommendations were presented eight years ago, the same issues are echoed today in the field of brain injury rehabilitation. Moreover, Mateer et al., (2005) address the challenge with current treatment interventions by stating:

Professionals working in neuro-rehabilitation widely acknowledge that it is important to treat the “person with a brain injury,” rather than merely treating the “brain injury” and ignoring the person. Unfortunately, explicit approaches to achieving the goal of treating the person with an injury wholly, and research of the potential interaction between differently focused interventions, are presently lacking. (pp. 62-66)

The therapeutic dance/movement intervention appears to offer an approach that addresses and meets these identified needs and challenges in brain injury rehabilitation. The intervention employs a non-medical model approach to rehabilitation, fosters client decision making and participation in goal development and individual growth, and it supports a mind-body integrative approach to treating the whole person beyond their “brain injury”.

This study provides evidence for the potential use and benefit of a therapeutic dance/movement intervention in brain injury rehabilitation. The therapeutic modality supports an integrative mind-body approach to rehabilitation encompassing the physical, cognitive, and psychosocial life domains in an integrative manner. Moreover, dance/movement supports a creative, functional, and expressive process embracing individual choice and goal setting based
on individuals’ needs and desires, while promoting active participation, adaptability, relationship building through group interaction, and a sense of empowerment for growth and change. The intervention promotes the essence of wholeness and employs a process oriented educational approach beyond a conventional rehabilitation-medical model approach.

**Insights**

Insights garnered from this study provide directions for future research studies. Several questions arose resulting from the study: Would it be valuable to conduct a study between another conventional brain injury rehabilitation intervention and dance/movement focusing exclusively on specific LMA components: Core and Breath Support and Grounding, Effort-Life, and Aspects of Shape? This study may provide insights into the importance of these components as fundamental features that contribute toward an integrative approach to rehabilitation. With regard to quality of life issues, to what extent would an individual’s perceived quality of life improve if each brain injury treatment intervention employed an integrative perspective within their specialty areas? Would it be valuable for each brain injury rehabilitation service to measure an individual’s quality of life in addition to measuring discrete components such as range of motion, procedural or declarative memory, or performance of activities of daily living? Quality of life is about an individual’s sense of his/her whole being and worldview. To what extent would a treatment modality be considered efficacious if the intervention was not perceived to be contributing to an individual’s sense of improved quality of life?

With regard to measurement instruments, Laban Movement Analysis (LMA) provided a comprehensive language and analytic framework for observing, describing, and analyzing qualitative and quantitative changes in human movement. LMA provided a means of perceiving and a language for documenting movement applicable to any body movement research (LIMS, 1990; Freire, 2001; Bartenieff & Lewis, 1980). In essence, “the quality of movement in a living thing (its nature and function) is an indication of quality of life” (Hodgson, 2001, p. 65). Brain injury rehabilitation measurement instruments lack this type of analytic tool. Could LMA be a meaningful system for measuring an individual’s long-term outcome and quality of life?

What might a comparison between dance/movement and other conventional therapeutic modalities (occupational therapy, speech therapy, cognitive rehabilitation) yield when using LMA as the analytic tool? Would it be useful to use LMA as an observation and analytic tool when evaluating long-term efficacy with conventional rehabilitation services? Are there other
analytic tools that could be useful in measuring quality of life and satisfaction with life? Further research is warranted regarding these questions.

This study provided evidence to suggest that dance/movement is a valuable therapeutic modality for individuals with brain injuries. The study identified a potential treatment modality that extends beyond the medical model and introduced Laban Movement Analysis as a potential analytic tool in brain injury rehabilitation that may offer a meaningful measurement system to address clients satisfaction, long-term outcome, and quality of life. There is a substantial need to foster rehabilitation services that promote an integrative approach such as the dance/movement intervention presented in this study. We as rehabilitation professionals need to be progressive and creative in our efforts to develop and provide rehabilitation services that assist individuals with rediscovering themselves and the world around them. We have a moral and ethical responsibility to develop and demonstrate the efficacy of long term brain injury rehabilitation and community integration services as long as we continue saving lives.
REFERENCES


Additional Resources


APPENDIX A

LABAN MOVEMENT ANALYSIS

• Body
  Bartenieff Fundamentals

• Effort

• Space

• Shape
BODY
Laban’s conceptualization of Body

**Body Organization**

Upper Unit (gestural movements)
- Head/neck
- Chest/upper spine
- Shoulder joint/scapula
- Arm

Lower Unit (postural movements)
- Lower back/lower abdomen
- Pelvis
- Hips
- Thighs
- Lower legs
- Feet
- Toes

**Body Attitude**

Still Forms (pin, wall, ball, screw, tetrahedral) – Please refer to the *Still Forms* page for symbols and descriptions of each.

Body Stance - Stress (Vertical, Horizontal, Saggital, Diagonal)

Postural Configurations (head, shoulders, torso) – Please refer to the *Body Signs* page for symbols
Bartenieff’s Elaboration of Body

_Bartenieff Principles_

Developmental patterns
Breath support, core support
Dynamic alignment
Weight sensing (grounding)
Gradated rotation
Initiation and sequencing
Spatial intent
Effort intent

_Bartenieff Exercises “Basic Six”_

Thigh lift
Forward pelvic shift
Lateral pelvic shift
Body half
Knee drop
Arm circle
Still Forms

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>FORM</th>
<th>DIMENSIONALITY</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Pin</td>
<td>1 Dimensional</td>
<td>Linear</td>
</tr>
<tr>
<td></td>
<td>Wall</td>
<td>2 Dimensional</td>
<td>Planar</td>
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<tr>
<td></td>
<td>Ball</td>
<td>3 Dimensional</td>
<td>Voluminous/Expansive</td>
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<tr>
<td></td>
<td>Screw</td>
<td>3 Dimensional</td>
<td>Spiral/Twisted/Rotated Volumes</td>
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<tr>
<td></td>
<td>Pyramid</td>
<td>3 Dimensional</td>
<td>Tetrahedral</td>
</tr>
</tbody>
</table>
### The Body Signs

**For the Arms**
- Shoulder
- Elbow
- Wrist
- Hand
- Fingers

**For the Legs**
- Hip
- Knee
- Ankle
- Foot

**Body Areas**
- Basic sign for an area
- Area of Shoulder
- Chest (ribs)
- Waist
- Pelvis
- Whole area of knee
- Unit of knee
- Unit of foot

**Surfaces of Body Areas**
- A surface, any surface
- Face
- Back of chest
- Right side of waist
- Left side of pelvis
- Right front side of knee
- Lower left side of pelvis

**Movable Parts within Body Areas**
- Breasts
- Upper dorsal spine
- Right side of rib cage
- Diaphragm
- Lower dorsal spine

**Limbs**
- A limb
- Both arms
- Left arm
- Right arm
- Both legs
- Left leg
- Right leg
- Both hands
- Left hand
- Right hand

**Surfaces of Limbs**
- Under or back
- Over or top
- Thumb or big toe side
- Little finger or little toe side

### Area, Surfaces and Edges of Hands and Feet

**Area of Palm, sole of hand, Thumb or tip of fingers**
- Top of foot
- Inner edge
- Little finger or tip of finger

**Area of base of hand or foot**
- Under side
- Upper side
- Thumb or little finger
- Tip of heel

**Specifying area of foot, left or right**
- Left or right foot

**Specifying area of hand, left or right**
- Left or right hand

**Parts of the Fingers**
- Thumbs
- Index fingers
- Middle fingers
- Ring fingers
- Little fingers

**Parts of the Fingers**
- Right middle finger
- Base of middle finger
- Middle finger
- Middle of finger
- Last segment of middle finger

**Parts Above and Below Joints**
- Above
- Below

**Parts of the Head**
- (Pictorial signs have been used in scores where detailed signs were not known.)

### Simple Pictorial Signs

- Nose
- Mouth
- Teeth
- Eyes

### Detailed Signs

- Top of head
- Right ear
- Left ear
- Forehead
- Left cheek
- Tongue
- Throat
- Eyebrow

### Sign for Upper Body Movement

- Both sides
- Right side
- Left side
EFFORT
EFFECT

Effort Factors and their Elements

Space
  Direct
  Indirect
  Space is about attention, thinking, and orienting

Weight
  Strong
  Light
  Weight is about sensing and intention

Time
  Quick
  Sustained
  Time is about intuiting, decision making

Flow
  Bound
  Free
  Flow is about feeling and progression
EFFORT

Phrasing

Even

Impactive

Impulsive

Swing

Phrases can be either Short, Long, or Overlapping.
EFFORT

STATES AND TRANSFORMATION DRIVES

4 Drives (3 Elements)       6 States (2 Elements)

ACTION

Weight
Space
Time

Flowless
8 Basic Effort Actions

VISION

Flow
Space
Time

Weightless
Transformation

PASSION

Flow
Weight
Time

Spaceless
Transformation

SPELL

Flow
Weight
Space

Timeless
Transformation

Stable    Awake    Rhythm

Mobile    Awake    Remote

Mobile    Dream    Rhythm

Stable    Dream    Remote
SPACE

DIRECTIONS + LEVELS = 27 Directional Symbols

Point ⚫ (Center, Place)

Direction ⬤

A directional symbol indicates a spatial intent in that direction. There are an infinite number of directions into space. By definition, they begin at ⬤ and radiate out in a straight line.

By operational definition, there are a limited number of directional symbols we work with in the LMA system.

Directions may be composed of one spatial pull as in ⬤ (High), or 2 unequal spatial pulls as in ⬤ (High and Right), or 3 equal spatial pulls as in ⬤ (High, Right, and Forward).

Two equal but opposite Directions create Dimensions, Diameters or Diagonals.

Point

Infinite Directions

Sphere
Directional symbols describe displacement through space, not destination.

Assumption: Each new position becomes \( \ast \) from which one moves on to the next direction.

\[ \text{SPACE} \]

Directional Shapes

- forward
- back
- right
- left
- place
- diagonal

Level Colors

- low
- middle
- high

Same Shapes

\[
\begin{array}{cccc}
\vdots & \vdots & \vdots & \vdots \\
\vdots & \vdots & \vdots & \vdots \\
\vdots & \vdots & \vdots & \vdots \\
\vdots & \vdots & \vdots & \vdots \\
\vdots & \vdots & \vdots & \vdots \\
\vdots & \vdots & \vdots & \vdots \\
\end{array}
\]

Same Levels

\[
\begin{array}{cccc}
\ast & \ast & \ast & \ast \\
\ast & \ast & \ast & \ast \\
\ast & \ast & \ast & \ast \\
\ast & \ast & \ast & \ast \\
\ast & \ast & \ast & \ast \\
\ast & \ast & \ast & \ast \\
\end{array}
\]

\[ \text{is always where you are with a plumb line drawn from the center of weight to the floor, i.e. the line of gravity:} \]

\[ \text{Directional symbols describe displacement through space, not destination.} \]

\[ \text{Assumption: Each new position becomes } \ast \text{ from which one moves on to the next direction.} \]
SPACE (HARMONY)

DIMENSIONAL SCALE - A sequence of six one-dimensional movements along the cross of axes, originating from and returning to the center of the cross (body center) as it describes a pathway through the six available directions.

example: ▶ ▼ ◀ ▶ ◀ ▼

OCTAHEDRON - Geometric model established by connecting the extreme reaches of the six directions of the dimensional cross.

Movement along the edges of this model is peripheral. Such movement allows transitions from one dimension to another without going out of the Octahedron.

example: ◀ ▶ ▼ ▶ ◀ ▼

It is also possible to alternate central and peripheral movements in the octahedron.

SCALES

example: ▶ ▼ ▶ ▼ ▶ ▼ ▶

THE THREE PLANES - The extension of the dimensional cross into planes: the vertical (or door) plane including the dimensions up-down and side side divides the space in back; 2) the horizontal (or table) plane including the dimensions side-side and forward-backward divides the space of the upper body from the lower; 3) the sagittal (or wheel) plane including the dimensions forward-backward and up-down divides the space on the right side of the body from that on the left.
DIAGONAL CROSS - There are four full diagonals, passing through the center of the body and extending into space, remaining equally distant from each of the three planes. They stress equally three movement tendencies: vertical, horizontal and sagittal. The diagonals are:

- high right forward to deep left backward
- high left forward to deep right backward
- high left backward to deep right forward
- high right backward to deep left forward

CUBE - The geometric model established by connecting the extreme reaches of the eight directions of the diagonal cross.

DIAGONAL SCALE - The scale composed of the eight directions of the diagonal cross. Each movement in one of the eight diagonal directions is a central movement with three spatial tendencies of equal importance, thus primarily a shaping movement in character. These alternate with 2 dimensional peripheral movements along the surface of the cube:

ICOSAHEDRON - When the corners of the three planes are connected, they form an icosahedron, a geometric model from which various spatial scales and forms can be explored. A transition from one plane to another results in a modified diagonal pathway with three unequally stressed spatial tendencies. One can go peripherally along the edges or transversely inside the model. Traveling from point to point inside the cube or octahedron produces central movement. In the icosahedron it produces transverse movement unless one stays in the same plane in a diameter of that plane. All the scales and variations of the icosahedron involve movement with three spatial tendencies which are never of equal importance. Complex three dimensional gradations and variations in movement are possible using the icosahedron as a model.
**TRANSVERSALS:** - Diagonally inclined, with uneven stress on three spatial tensions, these movements occur between the corner of two planes passing through a third and progressing inside the icosahedron. Each of the four full diagonals produces six related transversals in the icosahedron. Two are modified by stressing width, the $a$ dimension, two by stressing height, the $z$ dimension, and two by stressing depth, the $y$ dimension.

example: for diagonal

the flat variations are: $\begin{array}{c} a \end{array}$ and $\begin{array}{c} z \end{array}$
the steep variations are: $\begin{array}{c} a \end{array}$ and $\begin{array}{c} z \end{array}$
the suspended variations are: $\begin{array}{c} y \end{array}$ and $\begin{array}{c} y \end{array}$

**FLAT** - The quality of a transverse inclination that moves from the horizontal to the vertical plane in the icosahedron. It is produced because the two planes share a side/side component.

**STEEP** - The quality of a transverse inclination that moves from the vertical plane to the sagittal plane. It is produced because the two planes share an up/down component.

**SUSPENDED** - The quality of a transverse inclination that moves from the sagittal to the horizontal plane. It is produced because the two planes share a forward/backward component.

**INCLINATION** - A transversal movement which is deflected from the diagonal toward either vertical, sagittal, or horizontal axes of the cross of axes. Also called modified diagonal.
SHAPE
SHAPE

Selected Shape Elements - describing changes of the qualities of the body shape and the body in space; in order of increasing adaptability in shape and access to space.

\[\] = Shape Action Stroke

I. Body oriented shape change

A. SHAPE FLOW MOVEMENT - Body oriented growing and shrinking movement quality; just about "me"; the breath as a model or baseline; simple folding or unfolding of the limbs.

\[\] = Basic symbol

Growing, opening, unfolding, out away
Shrinking, closing folding, in towards

Specific terms and symbols (Bipolar only) from Dr. J. Kestenberg’s Tension Flow vocabulary:

Lengthening (\[\]) Bulging (\[\]) Widening (\[\])
Shortening (\[\]) Hollowing (\[\]) Narrowing (\[\])

II. Environment oriented shape change

A. DIRECTIONAL MOVEMENT - Goal oriented movement quality; "me" going to a location or final end point; bridging between self oriented movement and going to the environment; linear.

\[\] = Basic symbol

Spoke-like Arc-like

Specific terms and symbols:

Upward \[\] Downward \[\]
Forward \[\] Backward \[\]
Sideward Open \[\] Sideward Across \[\]

B. SHAPING MOVEMENT - Process oriented movement quality; "me" forming the space or adapting to space and the environment; carving, molding, and sculpting actions.

\[\] = Basic symbol

Gathering (\[\]) and Scattering (\[\]) are general Shaping terms referring to shaping movement qualities toward or away from the body.

Specific terms and symbols from Warren Lamb’s vocabulary:

(Often used to refer to shaping in 2-dimensional planar forms.)

Ascending (Rising) \[\] Descending (Sinking) \[\]
Advancing \[\] Retreating \[\]
Spreading \[\] Enclosing \[\]
APPENDIX B

IRB APPROVAL LETTER

DATE: February 11, 2005

MEMORANDUM

TO: Marcie Boucouvalas Human Development 0362
Marianne Talbot

FROM: David Moore

SUBJECT: IRB Expedited Approval: "Exploring the dynamics of a therapeutic dance/movement intervention for individuals with brain injuries" IRB # 05-090

This memo is regarding the above-mentioned protocol. The proposed research is eligible for expedited review according to the specifications authorized by 45 CFR 46.110 and 21 CFR 56.110. As Chair of the Virginia Tech Institutional Review Board, I have granted approval to the study for a period of 12 months, effective February 10, 2005.

Virginia Tech has an approved Federal Wide Assurance (PWA00000572, exp. 7/20/07) on file with OHRP, and its IRB Registration Number is IRB00000667.

cc: File
DATE: December 2005

MEMORANDUM

TO: Marcie Bouscouvalas HD
    Marianne Tobot

FROM: David Moore

SUBJECT: “Exploring the dynamics of a therapeutic dance movement intervention for individuals with brain injuries” IRB # 05-090

The above referenced protocol was initially reviewed and approved by the Virginia Tech IRB on February 10, 2005. DHHS Office for Human Research Protections (OHRP) regulations require that on-going projects be reviewed and re-approved within 12 months (or sooner) from the date of the original approval of the protocol.

This memo is intended to ascertain the current status of your protocol, and, if needed, to prompt you to seek re-approval. Please provide the information requested below, and return a copy of this document to the Office of Research Compliance (attn: David Moore, Mail Stop 0442) at your earliest convenience.

Regarding the above referenced protocol [check the applicable statement]:

[ ] YES, the project has been completed.
[ ] NO*, it has not been completed, and will require an extension beyond the original 12 month approval.

*NOTE: if you checked NO, then you must submit the following materials for review and re-approval by the IRB Chair.

1. A copy of the original signed approval form.

2. A brief progress report to include: how many subjects were involved to date, and a description of any unforeseen complications or events which increased the level of risk to the subjects.

3. Any planned changes in the protocol which would impact the human subjects and the level of risk.

4. A re-analysis of the risks and benefits in light of the experience gained in the project to date.

5. An estimate of the time required (in months) to complete the study.

Your re-application package should be submitted through your departmental Human Subjects Committee or designated departmental IRB reviewer. Prompt completion of the package and transmittal to the Office of Research Compliance (attn: David Moore, Mail Stop 0442) will ensure timely action by the IRB prior to the approval expiration of the original protocol. As stated in the original approval letter, the request for continuation must be received 30 days prior to the expiration date. Failure to submit the requested materials 30 days in advance of the expiration date may result in notification of the PI to stop all Human Subjects activities until updated approval is received.

A Land-Grant University - Putting Knowledge to Work
An Equal Opportunity/Affirmative Action Institution
APPENDIX C

PHYSICAL THERAPIST INTERVIEW QUESTIONS

PHYSICAL THERAPIST INTERVIEW QUESTIONS

Selection criteria:

- Licensed as a Registered Physical Therapist
- Demonstrated experience working with individuals with brain injuries
- Philosophy of using holistic treatment approach
- Willingness to provide five weekly physical therapy sessions to the five individuals within the study
- Good inter-personal skills and a commitment to providing high quality services to individuals in need of services

Begin by providing a synopsis of the study and the PT’s involvement within the study – even if provided this information via initial telephone contact

PT Name:

What are your Licensures and Certifications – related to PT and others, if apply?

How many years have you been working as a PT?

(If not previously addressed) – Are you certified as a NCS?

(If not NCS certified) - Are you familiar with the certification and if so, do you have any thoughts regarding this certification as to whether an individual with a brain injury should receive treatment solely from a NCS physical therapist?

What has your experience been in working with individuals with brain injuries as a PT?

What settings?
Did you enjoy working with this group of individuals? Would you say that you use a holistic approach when treating individuals with whom you see? If so, how would you describe your holistic approach/philosophy?

What is your educational experience?

Are you willing and available to participate in this study by providing five weekly physical therapy sessions to the five individuals with brain injuries?

Do you have a location in which to provide PT services or would you like me to coordinate this?

What is your available schedule; are there specific days and times better for you than others?

When would you be able to begin working with the clients?

Once the schedule is coordinated with the clients, could we possibly maintain a consistent day and time for each client to assist them with remembering their appointments?

As previously stated, the rate is $30.00/client/session. Does that still work for you?

What additional information do you need from me regarding the five clients before you begin working with them?

What else can I do to assist you before we begin this process?

Do you have additional questions you would like to ask me?
APPENDIX D

INFORMED CONSENT FORM

Purpose of Research
This dissertation is being conducted by Marianne Talbot, a Ph.D. candidate of the Virginia Polytechnic Institute and State University. The purpose of this qualitative study is to better understand the process of a therapeutic movement intervention specifically designed for individuals with brain injuries.

Procedures
Participants agree to voluntarily participate in five consecutive weekly movement therapy sessions and physical therapy sessions. Participants will continue participating in their regularly scheduled movement therapy sessions in addition to attending one weekly physical therapy session for 5 weeks. These sessions will be videotaped in their entirety. Participants will partake in these treatment sessions as they would normally for their own individual benefit. Research staff will coordinate scheduling and transportation with all parties involved to ensure reasonable accommodations are made to voluntarily participate in this research study. Prior to participating in this project, the participant will need to obtain a written physician’s order for physical therapy services. Staff will assist with process as well, if requested.

Risks
The risks of harm anticipated in this research study are not greater than those encountered in daily life or during any other therapeutic treatment modality in which one may participate.

Benefits
Potential benefits from participating in this research study include increased range of motion, balance and coordination, flexibility, cognitive processing skills, and improved self confidence and social interaction. There is no promise or guarantee of these potential benefits while participating in this study.

Confidentiality
Participants’ names will remain anonymous by using pseudonyms. Names will be coded as a letter to ensure confidentiality. Other potential identifying information may also be altered to protect participant’s identity. At no time will the researchers release the results of the study to anyone other than individuals working on the project without the participant’s written consent.

Videotape Information
By agreeing to voluntarily participate in this study, participants are informed that they will be videotaped during 5 weekly movement therapy and physical therapy sessions. The videotapes will be secured and stored in a fire proof safety box at the property of Marianne Talbot’s home under her supervision. Videotapes will be transcribed by Marianne Talbot and members of her Dissertation Committee and Advisors for the sole purpose of this research study. Marianne
Talbot will have access to the videotapes. The tapes will be destroyed 5 to 7 years after completion of the research study.

**Compensation**
There is no monetary compensation provided for volunteering in this research study.

**Withdrawal Procedures**
Participants may choose to withdraw their consent and to withdraw from this study at any time without negative consequences.

I voluntarily agree to participate in this study. I have the following responsibilities:

- I agree to voluntarily participate in five consecutive weekly movement therapy sessions and five physical therapy sessions.
- I will assist research staff in coordinating the scheduling of PT sessions and transportation in order to participate in this study.
- I agree to obtain written physician’s order for physical therapy services and ask research staff if assistance with this process is needed.
- I am responsible for myself and my actions during movement therapy and physical therapy sessions.
- I am responsible for providing accurate medical and psychosocial information as needed for this study.

________________________________________  _______________________
Participant Signature      Date

________________________________________  _______________________
Significant Other Signature     Date

**Participant Permission**

I have read and understand the Informed Consent Form and conditions of this research study. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:
MEDIA RELEASE FORM

I, _____________________________, hereby give permission to Marianne Talbot and her agents to be videotaped for the sole purpose of Ms. Talbot’s dissertation research project through the Virginia Polytechnic Institute and State University. The videotaping will be limited to the therapeutic dance movement classes conducted by Marianne Talbot, and the physical therapy sessions conducted by ______________.

I also give permission to copyright, use, exhibit, publish, reproduce, and display any videotaped material for the sole purpose of Marianne Talbot’s dissertation.
APPENDIX E
CLIENT ASSESSMENT FORM

NATIONAL REHABILITATION & REDISCOVERY FOUNDATION

P. O. Box 41226
Arlington, VA 22204
703 521-6966

INTAKE/ASSESSMENT FORM

F/U ___________________________ Staff Initials ________________
 Service(s) Requesting _____________________________________________
 Name ___________________________ Date _________________________
 Address _________________________________________________________
 _______________________________ Phone __________________________
 Email Address ___________________________________________________
 Emergency Contact ________________________________________________
 Referral Source ___________________________________________________
 Date of Birth _____________ Age ________ SS# _______________________
 Diagnosis __________________________ Date of Onset ___________________
 Description of Injury/Disabling Condition

____________________________________________________________________

Treatment Facilities _________________________________________________

____________________________________________________________________

Current Treatment/Therapies __________________________________________

Current Medications _________________________________________________

Primary Physician Name & Phone _______________________________________

Physical & MH Hx & Status ____________________________________________
Needs/Wants Identified

Involvement with Community Services/Agencies/Activities

Current Living Situation & Marital Status

Family Hx & Current Status

Supports

Financial Situation

ETOH Hx

Employment/Volunteer Status/Occupation

Hobbies/Interests

Typical Day/Routine

Plan:
Synopsis of the five PT Sessions: Joanna

Session 1: The initial session entailed the assessment in which the physical therapist introduced herself and provided Joanna with an overview of the assessment process. During this time, the therapist was standing while Joanna was sitting in a chair. The therapist proceeded with the assessment by asking Joanna a list of questions regarding her balance, strength, and flexibility and issues related to mobility. The questions pertained primarily to the function of the lower half of the body. The therapist then proceeded to ask Joanna to remove her socks and shoes to assess Joanna’s foot and leg strength and flexibility and potential pain in these areas. During this time, Joanna remained stable as she sat in a chair while the physical therapist was mobile while activating Joanna’s joints and writing notes. It was observed that when the therapist squatted down and entered Joanna’s personal space when manipulating her legs and feet, Joanna became more active as observed when her upper body advanced into the Forward Saggital Plane toward the therapist. Once this part of the assessment was completed, the therapist asked Joanna to stand to evaluate Joanna’s static stance proceeded by her balance and mobility. Joanna walked across the room and back again to demonstrate her gait while the therapist observed from a distance. The therapist noted Joanna’s right foot lift and inquired as to whether she realized her foot was lifted and if she could plant her whole foot on the floor while walking. Joanna said it was too painful. Joanna exhibited homolateral arm movement with her left arm swinging more freely than the right arm as she walked with her right foot supinated with weight bearing on the later aspect of her foot which added to her inability to access her Weight.

The therapist talked about trying ultrasound and electrical stimulation during therapy sessions to attempt to relax the muscles surrounding the area so that Joanna could walk with her right foot flat on the floor. Joanna commented she would try her best to get her full foot to remain on the floor while walking and the therapist replied by stating “great, that’s all I’m looking for”. During this interaction, both were standing, the therapist with Neutral Stress and Joanna with Forward Saggital Stress. The therapist then directed Joanna to put her socks and shoes back on so the therapist could evaluate Joanna’s walking up and down stairs. While Joanna was putting her socks and shoes on, the therapist wrote notes and watched Joanna
complete the task. The session ended with the therapist holding her notes in one hand while verbalizing several goals she had for Joanna based on her evaluation. During this time, Joanna was sitting in a chair with Passive Weight while the therapist stood to Joanna’s right side fluctuating between Neutral and Forward Saggital Stress. The session ended with the therapist thanking Joanna and shaking her hand by extending her arm to Joanna in Far Reach with a Spoke-like Directional Movement with Quick Time while Joanna lifted her right arm slightly with Passive Weight remaining in Near Reach to her Kinesphere. Neither individual’s Effort-Life seemed to influence the others during this session. Both individual’s Body and Effort-Life remained unchanged by the other’s presence.

Session 2: The second PT session began with the therapist outlining what she was going to have Joanna work on during the session. During this time, both individuals were sitting in chairs each within their own personal space. The session began with leg stretches, alternating the stretch on one leg at time by placing the leg on a stool with foot flexed while remaining seated. Both individuals remained seated during stretches with the therapist demonstrating the stretches to be completed followed by Joanna’s performing them. The therapist timed the stretches for 15 seconds on each foot before alternating to the next foot. The next set of exercises involved a Styrofoam balance board. Joanna was instructed to place her right foot on the flexible board and rotate her foot back and forth 10 times. She completed this task with single joint motion of her right leg and foot. Joanna’s mother was present during this session and sat beside her during the seated stretching exercises to provide motivation to actively participate in the activities. When the therapist and Joanna’s mother conversed, Joanna disengaged from the two by dropping out of time and checking her finger nails or sensing herself by rubbing her arm. This continued until the therapist progressed to another exercise. During this session, the exercises focused on strengthening and releasing her right foot.

The next set of exercises involved Joanna’s standing and performing leg lifts alternating 10 times on each leg sideways and backwards while holding onto the window ledge for upper body stability. The therapist remained standing while observing Joanna with Neutral Stress in the Vertical Plane. Again both individuals maintained their own personal space. The next exercise involved standing on another balance board while holding onto the window ledge. Joanna refused to continue performing the exercise and walked back over to her chair where her
mother was sitting. The therapist then brought the balance board to where Joanna was sitting and attempted to engage her while sitting down. When the therapist provided Motivation and Intent with the goal of not letting the therapist push the balance board down while Joanna’s feet were on it, Joanna leaned forward with her upper body in the Saggital Plane, accessed her Core Support and organized her Whole Body to perform the task. The last activity was for Joanna to walk while consciously swinging her right arm when walking. Joanna initially declined from walking across the floor. With Joanna’s mother’s prompting, Joanna proceeded to walk while the therapist walked beside her. While they were walking, Joanna stopped and asked the therapist “What are you going to help me with?” The therapist replied by saying, “What am I going to help you with? With walking, so you can get the right arm to swing, ok?” The session ended with the therapist discussing the importance of Joanna’s right foot to become more even with the floor for better mobility and provided a list of exercises for Joanna to do when at home. The therapist was addressing both Joanna and her mother during this time and encouraged her mother to assist her with this task. As the therapist and Joanna’s mother engaged in conversation, Joanna dropped out of time and began self referencing by focusing on her fingernails as observed earlier in the session. Her mother prompted Joanna to re-engage in the conversation by asking her a direct question. After Joanna responded, the therapist began talking with the mother again and Joanna continued with her pattern of dropping out of time. As also observed during the initial session, neither individual’s Effort-Life seemed to influence the others during this session with the exception of the exercise performed using the balance board while actively engaging Joanna in a Whole Body experience with Motivation and Intent. Both individual’s Body and Effort-Life remained unchanged by the other’s presence.

Session 3: This session was shared with Roger. While Roger warmed up on the treadmill, the therapist and Joanna engaged in leg stretches using the stool while sitting followed by standing leg stretches. Both individual’s patterns remained unchanged. The therapist divided her attention between Roger and Joanna. When the therapist gave Joanna a stretch to perform independently, Joanna ceased the activity and dropped out of time again with the same patterning as observed in previous sessions. After leg stretches, the therapist attempted to introduce the Pilates Machine to Joanna and demonstrated its use. Joanna declined to lie on the machine. The therapist asked if she was afraid of the machine. Joanna stated she was not. The therapist
progressed to having Joanna work on the balance board used in the previous session. In the middle of the exercise, Joanna stated in Quick Time with Impactive Phrasing, “I want off, I want off.” The therapist asked “What’s happening here?” Joanna stated that she felt unstable and wanted to get off. The therapist attempted to keep her engaged without success. Joanna got off the balance board and sat down in the chair. The therapist walked over to Joanna and asked if she wanted to work on other balance exercises while standing. Joanna declined through a head nod while the therapist assisted her to standing and attempted to engage her in a standing balance exercise. Joanna stated she wanted to sit down and proceeded to do so. The therapist asked her what was wrong, however Joanna did not verbally reply. The therapist commented that she could rest while working with Roger. After Roger completed his session, the therapist walked over to Joanna again and suggested she walk on the treadmill for 10 minutes for a cool-down, which Joanna did complete. The therapist observed Joanna during this activity commenting that she was doing a good job while remaining standing in the Vertical Plane with Neutral Stress with Pin Shaped Spatial Form. After the treadmill exercise, the therapist attempted to engage Joanna in two additional exercises. The first was using a stretch band with each one holding onto one end. Joanna was sitting in a chair while the therapist was sitting across from her on the physio-ball. When the therapist pulled the band up from her end, Joanna was to do the same for countertension. Joanna began to participate in the activity then decided to disengage and kept her arms down by her sides while in the chair. Her torso became concave as she retreated back into her chair while the therapist was sitting on a physio-ball across from her advancing toward her in the Saggital Plane with Vertical Stress in her upper body.

The last exercise was performed on the physio-ball. Joanna transferred from sitting in the chair to sitting on the physio-ball with both feet planted evenly on the floor, both hands down by her sides holding onto the ball, concave torso, and head tilted slightly forward in the Saggital Plane. The therapist progressed from standing to squatting down to the right side of Joanna and attempted to engage Joanna by placing her left arm on Joanna’s back through Shaping. As the therapist asked Joanna to pick up her right leg and make trace forms in Space with her foot by lifting, she was gesturing the movement by making circles with her right hand. Joanna answered by nodding her head back and forth. After Joanna initially refused, the therapist suggested she trace the alphabet with each foot in space, one at a time. It was evident Joanna did not want to complete the exercise. Joanna proceeded to lift her right leg in Space and the therapist suggested
she draw an A, then a B, C, then a D. Joanna began drawing an A, then a B, then abruptly stopped and bounced on the ball through her pelvic support and attempted to move to the opposite side of the ball from the therapist. Joanna then paused while the therapist attempted again to re-engage Joanna in the activity. After Joanna began drawing an A and a B with her left foot in Space, Joanna kicked her left leg forward with Impactive Phrasing, Quick Time, and Strong Weight with her hands holding onto the physio-ball, and with the same effort and phrasing, Joanna said “I want to smoke, I want to smoke.” Both the therapist and Joanna paused followed by the therapist saying “let’s just do three more and we’ll have a sip of water, how about that?” With Quick Time and Impactive Phrasing, Joanna replied by nodding her head back and forth while looking away from the therapist. The therapist proceeded to stand up and walk away from Joanna to sit in a chair across from her; and with the therapist’s upper body Advancing in the Saggital Plane, she stated, “You’ve got to give me a reason why you don’t want to do anymore exercises. Are you tired out?” The therapist was attempting to solicit some type of verbal response from Joanna to re-engage her. The therapist asked Joanna questions regarding her being tired and asked about her day. Joanna engaged in verbal response minimally, the therapist then asked her to do the same with her left leg. Joanna performed the task with the therapist cuing her. Joanna removed herself from the ball, walked over to the lobby area where her mother was waiting and proceeded to open the door and walk out. Her mother prompted her to say good-bye and she did. Joanna exited the clinic into the hallway bathroom while the therapist and her mother briefly conversed.

Session 4: This session focused on providing Joanna with ultrasound to her right foot. The therapist had Joanna lay on a therapy table with socks and shoes off and her head supported by a pillow while the therapist treated Joanna with ultrasound. The therapist engaged in verbal conversation with Joanna with Impactive Phrasing. Joanna’s replies were brief with Quick Time.

Session 5: The final session began with balance exercises in standing position while barefoot. The session goal focused on maintaining Joanna’s right foot even with the floor during exercises. The therapist and Joanna performed a series of the leg exercises standing across from each other holding hands. Both maintained their personal space with the exception of bridging with their arms. After completing the set of standing exercises, the therapist asked Joanna to sit down so
she could check Joanna’s foot. Joanna crossed her right leg over her left leg and extended her foot horizontally and pointed to where she was feeling pain. The therapist massaged her foot while squatting down beside her foot shaping around her foot as she massaged it.

The last series of exercises were performed on the physio-ball. Two of the three exercises involved an Outer Spatial goal. Joanna engaged and participated in these activities fully. During these exercises, both individuals were on physio-balls facing each other. The therapist wanted Joanna to touch her hands 10 times with the therapist’s hands in the upward Vertical Dimension followed by her hands being in the Horizontal Dimension alternating from right to left side. Joanna performed the exercises with clear Spatial Intent using Directional Movements to bridge to the physical therapist’s hands from a functional goal oriented perspective. The therapist also used Directional Movements when reaching into Space. Joanna completed the exercises despite her apparent flat affect during the activities. Joanna’s Impulsive Phrasing and Quick Time were present especially as the exercises progressed. The last physio-ball exercise entailed making circles with the ball initiating from the pelvis. Both individuals continued facing each other on physio-balls during the activity. The therapist explained the activity and demonstrated it while on the physio-ball. This exercise did not involve Spatial Intent. As a result, Joanna was minimally engaged in the activity. The therapist did not appear to be affected by Joanna’s apparent neutral attitude toward the exercises and activities as a whole. The therapist’s emphasis was placed on Joanna’s completion of the exercises and not necessarily on the feelings or experiences of the exercises.

When Joanna finished with the exercises, she stood up from the ball and sat back in the chair. The therapist stated how well she did and that if she had any questions she should call her. This concluded the final PT session for Joanna.
Synopsis of the five Dance/Movement Sessions: Joanna

Session 1: The dance/movement session began with the participants sitting on the floor in a circular formation. Music was playing as a backdrop for the warm-ups. Participants talked about their week and how they were feeling. Joanna commented that she had recently gotten out of the shower which was why her hair was still wet. Roger commented she must have felt refreshed. We then began our sequence of warm-up exercises while sitting on the floor beginning with breathing exercises – inhaling and exhaling to access Core and Breath Support. Exercises included stretches related to the head-neck, shoulders, abdomen, arms, wrists, legs, and ankles with focus on breath supported movements for full stretch and release of the major muscle groups. The warm-ups concluded with sit-ups. The group transitioned from sitting on the floor to standing position to begin the center floor work. Joanna proceeded to transition from sitting to standing by using another participant’s wheelchair armrest to pull herself up to standing position. Joanna grasped onto the wheelchair to push and yield with her upper body to maintain the stability needed to mobilize with her lower body. When Joanna began the program, she needed two individuals to assist her with this transition.

The floor work entailed traveling across the room while moving colorful pieces of fabric held in each participant’s hand while listening to rhythmic music. The whole group moved in their own way across the floor and back again several times concentrating on upper body homolateral and contralateral movements. I traveled across the floor with each client attempting to mirror their movements and Effort-Life. We then traveled across the floor with each participant taking turns leading while the others followed by mirroring the leader’s movements. When Joanna led the group, she used Outer Spatial Intent with the piece of fabric and traveled across the floor and back again alongside Roger. Joanna participated during the entire center floor work section, chose one of the songs to play, and after completing this activity, independently gathered the fabric from the participants and placed them back into the bag. As Joanna turned around to return to the group, she turned up the music and glanced over at me with a smile. I was adjusting the video camera on the tripod. I commented “that works,” as I proceeded to catch my foot on the tripod. Joanna advanced forward as she laughed and placed her right arm toward her abdomen.
We concluded the session with Tai Chi and breathing exercises. Joanna completed the movements in sequence as we stood in front of the mirrors to observe our body alignment. After repeating the Tai Chi movements several times, we ended the session with deep breathing exercises. While remaining in standing position facing the mirrors, we raised our arms out to the sides as we inhaled and back down to our sides as we exhaled. We repeated this exercise several times. After the session ended, Joanna brought her notebook over for me to assist her with writing in her journal. She and I proceeded to walk over to the window sill to write as we shared in each other’s kinesphere. We both used Shaping as we conversed and wrote in her notebook. After she was finished writing, she gathered her belongings, waived goodbye to everyone, and walked out of the room with a slight Forward Saggital tilt in her upper body. Threaded throughout the session’s activities were the use of Movement Themes and Whole Body organization and integration.

Session 2: The session began in the same manner in which the first session began whereby everyone sat on the floor in a circular formation and began talking about their week. Music was playing as a backdrop for the warm-up exercises. One of the participants asked Joanna how her week went and she stated “my parents are going on vacation.” Everyone wanted to know where, so she let them know. We began our warm-up exercises which were similar to the ones performed during the first session. When we began our leg lifts, I asked who would like to count and Joanna proceeded to lead the group by counting and executing the leg lifts with her own rhythm and timing. She continued counting until we completed the exercise. We completed the warm-ups with sit-ups then transitioned from sitting on the floor to standing. Joanna proceeded with her transition in her usual manner as described in the first session. It appeared she was having some delay in standing during this session, so I asked if she needed any assistance. She shook her head back and forth and proceeded to stand on her own.

After everyone was standing, we continued working on homolateral and contralateral movements while traveling across the floor. I asked the group what type of music they wanted. Joanna walked over to the stereo and CD collection, picked out a CD, placed it in the CD player, and turned it on. Everyone agreed that they liked the music she chose. As we traveled across the floor, it was evident that Joanna had a sense of inner rhythm and outer motivation. Joanna used the music as an outer motivation to activate herself in Space with Rhythm Phrasing. As we
traveled across the floor together, I mirrored Joanna’s phrasing and provided kinesthetic empathy leading Joanna to increase her right arm swing, which was weakened as a result of her injury. We talked as we traveled across the floor and I said “are you having fun yet” and she replied “almost” with diminished Quick Time. We both proceeded to smile as we completed the activity.

Joanna experienced and exhibited a wide range of BESS components resulting from the activity and intervention. Threaded throughout the sessions activities were the use of Movement Themes and Whole Body organization and integration.

Upon completion of the center floor work, we concluded the session as we did during the first session with Tai Chi movements and breathing exercises. Joanna participated in these activities and after the session ended, she gathered her belongings and walked out of the dance studio in her usual manner waving good bye to everyone with a smile.

Session 3: The session began in the same manner in which the two previous sessions did progressing from the warm-ups to the center floor work and concluding with the Tai Chi and breathing exercises. During this session, we worked with a balloon. We stood in a circular formation in the center of the room and took turns volleying a balloon back and forth to each other. Joanna became instantaneously engaged in the activity. Her Quick Time and Impulsive Phrasing diminished and became more Sustained with Even Phrasing. At the same time, my Even Phrasing and Sustained Time diminished and became more Impulsive with Quick Time. We appeared to exchange each other’s Effort-Life, which maintained the group’s Effort-Life balance. Joanna used Direct Space and Whole Body organization to hit the balloon with great precision using Directional Arm Movements to bridge to others. Joanna used Three-Dimensional movement and Gradated Rotation during this activity as well. When I asked Joanna to teach us how to hit the balloon with such skill, she stated with a big smile, “you don’t have the skills.” Everyone in the group laughed as we continued with the activity. At one point, Joanna became our teacher assisting us with learning to hit the balloon with our head. At another point during the activity, Roger and Joanna began to volley the balloon back and forth to each other creating a rhythm between the two. When Joanna hit the balloon with her head directing it toward Roger, he in turn organized his Whole Body enabling him to hit the balloon with his head. The two volleyed back and forth several times then we all came back into the circle and
each attempted to hit the balloon with our head. Roger and Joanna taught us how to accomplish this. I then referred to the two of them as the famous soccer player, by saying “here we have Pele one and Pele two.” The whole group laughed as we continued to experience the balance between the Movement Themes within the activity.

We concluded the session with Tai Chi movements followed by deep breathing exercises. After the session ended, Joanna stated she forgot her journal and proceeded to walk out of the room in her usual movement pattern and waved good bye to everyone.

Session 4: The session began as the other sessions had. During the seated warm-ups, Joanna stated her stomach was hurting. I assisted her to standing position and she walked out of the room to the rest room at the end of the hallway. After she re-entered the room, she stated she was still feeling poorly and I asked her how I could assist her. She stated she wanted to sit in a chair. Roger stated he would obtain a chair from the other room and bring it in the dance studio for Joanna to sit in. After about 10 minutes, Joanna’s mother arrived and entered the room. She had arrived early. Joanna let her mother know she was not feeling well. Joanna’s mother commented she was complaining about her stomach hurting earlier in the day and decided it best to go home. The participant’s wished Joanna well and everyone said good bye.

Session 5: The session began in the same manner in which the previous sessions did progressing from the warm-ups to the center floor work and concluding with the Tai Chi and breathing exercises. During the seated warm-ups, we talked about summer vacations. Joanna stated she was going to the beach which prompted other participants to talk about their experiences at the beach. We conversed as we continued with our warm-ups and stretches. Joanna appeared tired during the warm-ups as she yawned several times, however she continued to participate in the warm-ups. One of the participants who was performing the stretches in his wheelchair decided to transition onto the floor. During his transition, he accidentally bumped into Joanna. The participant apologized and Joanna began to assist him onto the floor by rotating her body toward him and extending her right arm toward his upper body to stabilize him while he organized his lower body in a seated position. We continued with our routine. After completion of the warm-ups, one of the participants stated his birthday was soon approaching. The mention of birthdays stimulated a conversation about guessing everyone’s age. One of the participants asked Joanne how old she was. She replied. The same participant stated “I thought you were in your 20s with
that big smile you have.” Joanna responded with a smile. I stated that she was the youngest person in the group and she said “I’m the youngest in the nursing home, I want to be around young people so bad, old people stink, old people stink.” As she was talking, Joanna advanced forward with her upper body accessing Shape Flow by rubbing her left hand over her chin. I commented that her parents were working on locating another living environment for her with individuals more her age. She replied “I hope I get out of there soon.” Other participants chimed in with encouraging words. After that discussion, everyone transitioned from sitting on the floor to standing. Joanna began to push and yield with her upper and lower body toward a chair that was in the dance studio. One of the other participants must have observed Joanna moving toward the chair. As a result, using Quick Time, the participant walked to the chair, picked it up, and placed it down in front of Joanna allowing her to use the chair arm rest to press against stabilizing her upper body to mobilize her lower body to come to standing.

The participants stated they wanted to perform the balloon activity again for their floor work activity. One of the participants volunteered to blow up the balloon (thankfully). Similar dynamics occurred during this session as in the third session with regard to Joanna’s Effort-Life and interaction between Roger and the rest of the group. Joanna, through her Direct Space and Sustained Time with Even Phrasing, led the group by teaching us all how to hit the balloon with our heads. She set up the balloon for each participant to attempt to hit the balloon with their head. Joanna’s process with each participant was to advance forward toward the participant as she entered his/her kinesphere. She would then palm the balloon in her left hand, extend her left hand toward the top of her head, tossed it in Space above the individual’s head for him/her to hit with his/her head. Joanna initiated this task independently without any directions or cuing. She continued this pattern with each participant as she went around the circle. By the end of the activity, everyone accomplished the challenge. We all thanked Joanna for teaching us something new. She replied with a big smile then proceeded to volley the balloon back and forth from her head to her hand and back to her head again. We all laughed as I said “wow, that was awesome.”

The group activity provided Joanna with a range of opportunities to connect with her environment by connecting with others as well as providing her with a sense of empowerment and self-confidence in teaching the group an activity in which she was well versed. She used Outer Spatial Intent with the balloon and Direct Space as she tossed the balloon to each
participant’s head. Joanna demonstrated a motivation and intent to initiate the activity and provide each individual an opportunity. The activity appeared to be meaningful to the whole group. Joanna also exhibited a wide range of BESS components during the activity including Three-Dimensionality, Breath Support, Gradated Rotation, Weight Shift, Initiation and Sequencing, Spatial Intent, Active Weight especially during Shape Flow movements, and access to Light Weight.

From a group perspective, the activity provided the opportunity for everyone to connect with themselves and to one another and to be Functional and Expressive during the activity in their own way, while also balancing Mobility and Stability, Exertion and Recuperation, and Whole Body integration, promoting a meaningful activity.

We ended the session with our Tai Chi movements followed by breathing exercises.
APPENDIX G

LMA CODING SHEETS
(Example – Joanna’s Coding Sheets)
Notes:
Where is feedback loop?
Where is choice?

Motion influenced on A'd Walker's
Movement patterns on range of B333 dry session

Facts - vs whole - not as effective as

E112
LMA/BESS Coding Sheet

Client Name: Joanna  
Therapist: D/m

Session Number: 3
Videotape Reference Number: 5-Dm-2.73
Date: 7/15/05

Client

Body

Organization

Body Attitude

BF Principles

Effort

Flow

Weight

Time

Space

Effort Phrasing
Space
Kinesphere
Reach Space

Shape
Shape Flow
Directional Movement
Shaping

Notes: 3-D motion built into many activities
pre-distal
full body mobility
sense of motion
affairful gel
choice - control

10/12/13, 4/8, 4/19
APPENDIX H
VIDEO CLIP REFERENCE SHEET

J-PT-1 – Case Study 1 – Joanna during physical therapy session (physio-ball)

J-DM-1 – Case Study 1 – Joanna during dance/movement session (traveling across the floor)

J-DM-1.1 - Case Study 1 – Joanna during dance/movement session (balloon activity “you don’t have the skills”)

Cole-PT-2 – Case Study 2 – Cole during physical therapy session (grasping brake)

Cole-DM-2 – Case Study 2 – Cole during dance/movement session (movement phrase)

R-PT-3 – Case Study 3 – Roger during physical therapy session (walking Stability for Mobility)

R-DM-3 – Case Study 3 – Roger during dance/movement session (balloon activity – Roger and Joanna, Mobility/Stability)

D-PT-4 – Case Study 4 – David during physical therapy session (2 out of 5 times leg lifts)

D-DM-4 – Case Study 4 – David during dance/movement session (the Seagull dance)

Connie-PT-5 – Case Study 5 – Connie during physical therapy session (Core Support and Grounding)

Connie-DM-5 – Case Study 5 – Connie during dance/movement session (Grounding through Tactile Touch seated in chair)

Connie-DM-5.1 - Case Study 5 – Connie during dance/movement session (Grounding through Tactile Touch at the ballet barre)
APPENDIX I

RELATED ARTICLES

THERAPEUTIC DANCE/MOVEMENT

Jasses, Workshops and Seminars

SLEEP DISORDERS
May 25, 6:30 p.m. to 7:30 p.m. Montgomery General Hospital, Boyer Community Learning Center, 2nd floor, 16101 Venice Philip Dr., Olney. A workshop, sponsored by Montgomery General Hospital, for anyone interested in some of the common causes and treatment options for sleep disorders. To register or learn more, call 301-774-8881. Light refreshments will be served.

Support Groups

CLUTTERS ANONYMOUS
A 12-step program for anyone who wants help eliminating excessive clutter meets twice a week: 7:30 p.m. Mondays at St. Paul’s Lutheran Church, Schoen Hall, 4900 Connecticut Ave., NW; and 8:30 p.m. Wednesdays at the Unity Club, 116-118 West Broad St., Falls Church. Participants can attend one or both meetings. To learn more, call 301-897-8894.

DRINK DRIVING VICTIMS
Mothers Against Drunk Driving (MADD) sponsors groups for people injured in drunk-driving accidents. For times and locations, call 703-978-3025.

EPILEPSY
May 26, 7 p.m. to 8:30 p.m. Falls Church High School. Room 100, 7521 Jaguar Trail, Falls Church. A group, sponsored by the Epilepsy Foundation of the Chesapeake Region, for anyone with epilepsy. This session will discuss managing seizures with surgery. People who have had surgery to correct seizures will be available to answer questions. To learn more, call 703-472-6660.

HIP/KNEE PAIN
May 25, 11 a.m. Washington Hospital Center, 3NW, 110 Irving St. NW, Conference Room. A seminar, sponsored by Washington Hospital Center, on some causes of knee and hip pain and the latest treatments with regard to diet, exercise and medication. The group meets the second and fourth Tuesdays of the month. Participants can attend one or both groups. To register or learn more, call 202-877-3627.

LUPUS
May 27, 6:30 p.m. Reston Hospital Medical Plaza, 1800 Town Center Drive, Suite 117, Reston. A group, sponsored by Reston Hospital Medical Plaza, for anyone with lupus and their family and friends. The group meets the second and fourth Thursdays of every month. Participants can attend one or both groups. To learn more, call 703-892-3420.

MISBEHAVED KIDS
May 27, 7:30 p.m. to 9:30 p.m. Bethesda United Methodist Church, Room 205, 8300 Old Georgetown Rd., Bethesda. A group, sponsored by "Because I Love You" (B.I.L.Y.), for parents of adolescent and adult children who have challenging or destructive behavior. The group meets every Thursday. To learn more, call 301-530-3597. $1 donation.

ORGAN TRANSPLANT
May 27, 9 a.m. to 10:30 a.m. Howard University Hospital, 5th Floor, Room 5117, 2041 Georgia Avenue NW. A group, sponsored by Howard University Hospital Transplant Center, for pre- and post-transplant patients, their families and significant others. The group meets every Thursday. To learn more, call 202-885-1443.

SMOKING
May 31, 7 p.m. St. Paul’s United Methodist Church, 10401 Armory Dr., Room 113, Kensington. (Enter side door.) A group, sponsored by Nicotine Anonymous, is a 12-step program to help smokers break their addiction to nicotine. It meets every Monday. To learn more, call 301-529-5547.

SUBSTANCE ABUSE
Smart Recovery provides a secular approach to overcoming substance abuse. Smart has several meeting times and locations in the Washington area. To learn more, call 703-486-0202 or see www.smarte.com/smart.

Dancing Toward Recovery

While demonstrating a dance move, Marianne Talbot of Arlington might say, "Move this arm to that high corner of the room." She deliberately won't say right or left arm. That concept is tougher for some of her students, all of whom have neurological disabilities from brain injury or disease.

About 10 years ago, Talbot, a former professional dancer with a master’s degree in rehabilitation counseling, started the free therapeutic dance/movement classes. Her aim: to teach new types of movement to neurologically disabled individuals and boost their self-esteem. Classes are sponsored by the National Rehabilitation & Resilience Foundation (NRRF), a nonprofit advocacy group.

Talbot is the group’s executive director. In a typical dance class, said Talbot, there is usually “a right and wrong way to do something. In this class, what you do is the right way.” Some students, she said, even dance from wheelchairs.

Lise Walker, 33, and a student of Talbot’s for three months, works especially hard with her left side, walking—and sometimes dancing—with a cane. The Loudoun County woman cannot use her left arm and runs on her left leg since she suffered a brain aneurysm eight years ago. Walker’s favorite part about class: “The fun we have, and there’s so much hope in the room. Everyone is hoping to get better, and trying.” She describes a typical routine as everyone “moving across the floor trying to move their bodies fully.”

Every week Talbot teaches four classes of no more than 10 students per class. Open to all ability levels, classes are for Virginia and Maryland residents aged 16 and over. A family member or friend is welcome to attend the 90-minute classes, which have continuous registration.

Since 1997, Talbot has also led a dance company of more advanced students with the same type of disabilities called “Rhythms of Hope.”

To register or learn more about the classes, call 703-522-8864.

―Samantha Ganey

Lectures and Discussions

GERD
May 26, 7 p.m. to 8:30 p.m.

anyone newly widowed within the last two years meet at locations throughout Montgomery County. To register or learn more about any group, call 301-949-7398.

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A New Spin On the Art Of Motion

By Lisa Traub
Special to The Washington Post

VERTIGO. It’s the sensation of falling, even when two feet remain firmly planted on the ground. It’s the disconcerting and very real feeling of being off balance. It’s also the moniker a Jerusalem-based dance company chose to represent both physical instability and the precariousness of emotional situations that the company mines in its bold and highly adept choreography.

The company selected Vertigo as its name after the success of a popular first duet that co-founder and choreographer Adi Sha’al created based on his own vertiginous experiences as a pilot in the Israeli air force, explained Sha’al. “The sensation of vertigo, dizziness, loss of control...” he said of being airborne under extreme conditions, “you don’t know where it’s earth and where it’s sky.” The duet, “Vertigo,” built around the concept of uncontrollable movement not just in the air but with fellow dancer and company co-founder Noa Wertheim, exposes as well a relationship gone awry.

Four years ago, when Sha’al and Wertheim invited British-based choreographer Adam Benjamin to Jerusalem to create a new work, the company’s seven professional dancers learned again what it means to lose control, regain balance and share in a journey into the unknown. Benjamin specializes in working with dancers of mixed abilities, and he incorporated five additional dancers confined to wheelchairs into his work, “The Power of Balance.” Documentary filmmakers Ani Mann and Tom Backer joined the choreographer and dancers in the rehearsal studio, intimately recording the tremendous challenges and the small and large triumphs of this company of dancers. Throughout, vertigo took on new and unexpected meanings: Company members lifted dancers from wheelchairs and carried them in emotionally packed duets and trios.

Choreographer Benjamin seeks to erase preconceived ideas of disability and ability by allowing the professional dancers to use canes and wheelchairs and inviting the movements of the disabled dancers to inform the work. In the process, Benjamin demands that viewers rethink fundamental assumptions of who can dance and what makes a dancer beautiful.

On Tuesday, “The Power of Balance,” the award-winning film based on this collaboration, screens at the D.C. Jewish Community Center. After the screening, the Northern Virginia-based Rhythms of Hope Dance Company performs its eponymous signature work, Marianne Talbot, Rhythms of Hope founder and director, began teaching dance and movement classes to individuals with brain injuries and neurological disabilities a decade ago. Once that initial session finished, her students didn’t want to give up the skills they worked so assiduously to attain.

“I realized I had a responsibility to keep them challenged,” she said of her students. “Regular studios weren’t offering what we were offering. When you go into a typical dance class, you’re expected to do a defined first position and pike,” she says, referring to terminology for a basic ballet position and knee bend. “In our class,” she explained, “whatever first position you have is yours and that’s it. My students define their movements by what they can do, whether it’s from a wheelchair or standing with their weight on one leg and using a cane.”

Talbot, who works as a rehabilitation counselor and case manager for many years, sees noticeable benefits for the Rhythms of Hope participants, who began to enhance their cognitive and abstract thinking after working on choreographed dances. But audiences, too, benefit. Initially viewers may have difficulty seeing beyond the disability, Talbot acknowledges: “Many people aren’t used to a dance company for people with disabilities. Some people say, ‘They can’t really be good if they’re disabled.’” Talbot hesitates and asks rhetorically, “What in the world does that mean?”

“THE POWER OF BALANCE AND RHYTHMS OF HOPE DANCE COMPANY — Tuesday at 7 at the D.C. Jewish Community Center’s Aaron and Cora Goldstein Theater, 16th and Q streets NW. 800-454-8497.”
ARTS, Page 11

The Art of Healing

Involving the arts in health care settings has a long history of beneficence, advancement of health care programs. It has been found that the arts can improve mental health, reduce stress, enhance quality of life, and promote healing. The use of arts in health care settings can improve patient outcomes, reduce anxiety, and provide a source of comfort and distraction. The arts can also help patients cope with the physical and emotional effects of illness and treatment. In addition, the arts can provide a means for patients to express their feelings and experiences, which can lead to a deeper understanding of their own health and well-being.

The Value of Art in Health Care

Art therapy, music therapy, and other forms of expressive arts therapy can be used in health care settings to improve patient outcomes. These therapies can help patients cope with the physical and emotional effects of illness and treatment, promote healing, and improve mental health. In addition, the arts can provide a means for patients to express their feelings and experiences, which can lead to a deeper understanding of their own health and well-being.

The Benefits of Arts in Health Care

Studies have shown that the arts can have a positive impact on patient outcomes. For example, one study found that patients who participated in arts activities had lower levels of anxiety and depression, and improved quality of life. Another study found that patients who participated in music therapy had improved pain management, reduced anxiety, and improved sleep.

Conclusion

In conclusion, the use of arts in health care settings can improve patient outcomes, reduce anxiety, and provide a source of comfort and distraction. The arts can also help patients cope with the physical and emotional effects of illness and treatment. In addition, the arts can provide a means for patients to express their feelings and experiences, which can lead to a deeper understanding of their own health and well-being.
Troupe Creates Moving Experience

By Latavia Bachel, Special to The Washington Post

Rhythms of Hope Dance Company Helps Disabled Heal, Express Artistic Talents

Several years ago, Christa Rishi thought that her dancing days were numbered. She now knows better.

The program is the brainchild of Marianne Talbot, founder and artistic director of the Rhythms of Hope Dance Company, and choreographer for the dance company.

Talbot has been teaching dance and movement classes to people with disabilities for several years. She decided to start her own class because she believed there should be an alternative way to help those with neurological disabilities.

"I thought there had to be a more active and engaging way to help people with disabilities," she said. "I decided to start my own class because I believed there should be an alternative way to help those with neurological disabilities."

The group holds a regular open house for people interested in learning more about the program. The classes are held on Thursday evenings at the Studio of the Arts in Falls Church.

The classes are taught by Talbot and her assistant, who are both experienced in teaching movement classes.

The focus of the classes is on movement and dance, with an emphasis on communication and self-expression.

The classes are open to all levels of experience, from beginners to advanced dancers.

The goal is to help participants develop their own style of dance and express themselves through movement.

In addition to the regular classes, the group also stages performances and workshops throughout the year.

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The focus of the classes is on movement and dance, with an emphasis on communication and self-expression.

The classes are open to all levels of experience, from beginners to advanced dancers.

The goal is to help participants develop their own style of dance and express themselves through movement.

In addition to the regular classes, the group also stages performances and workshops throughout the year.

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Rhythm of hope

Dance troupe glides above its disabilities

By MICHAEL L. OWENS
News Virginian Staff Writer


This is the path of recovery and rehabilitation for people with brain injuries. Joy and success will soon follow, for there is hope.

This is the message of The Rhythms of Hope Dance Company, a 20-member company composed of dancers with brain injuries and other neurological disabilities.

The troupe performed Friday afternoon at the Woodrow Wilson Rehabilitation Center. Though not Swan Lake, it was impressive, considering some of the dancers required canes and wheelchairs for mobility just a few years ago.

The dance program falls under the wing of the National Rehabilitation and Rediscovery Foundation, a not-for-profit organization based in Arlington, Va.

Company founder and president Marianna Talbot is a rehabilitation counselor, case manager and dance and movement specialist.

She created the dance program nearly five years ago to fill a void in neurological rehabilitation.

"It seemed like there was something missing," she said.

She believed dancing would improve balance and coordination while also developing focus, organization and processing.

Talbot said preparing for the troupe's first dance took nine months of two-hour-a-week rehearsals.

Since then, lives have changed.

Dancer Steve Richardson, 42, of Burke, graduated from James Madison University in 1980.
Dance shows success of disabled

Performers, audience uncover the rhythm of hope

By Dawn Linner
Staff Writer

Tom Stumm does not remember the injury that left him comatose for two months and began a lifetime of rehabilitation and recovery.

People tell him that he was involved in a vehicle collision; he only knows that he woke up in a hospital.

But when Stumm steps and sways during a performance of the Rhythms of Hope Dance Company, he

Want to Go?

- Rhythms of Hope dance company will give a free performance at 3 p.m. May 4 at the Woodrow Wilson Rehabilitation Center. The company is a subdivision of the National Rehabilitation and Rediscovery Foundation Inc., founded in 1995.
- On the Web: www.nrrfrf.org

abilities will give a complimentary performance May 4 at Woodrow Wilson Rehabilitation Center in Fishersville. The event is hosted by the on-site Brain Injury Services Program.

Stumm has been with the company — which promotes the accomplishments of people with disabilities through dance — for three years. They have been the most progressive years of his therapy.

“I make mistakes. We all make mistakes ... but we have a good time,” he said Stumm. He is now a volunteer at the organization Working and Organizing Resources for the Disabled. Rhythms of Hope is a division of the National Rehabilitation and Rediscovery Foundation, Inc. in Arlington.

A few years ago, the organization was little more than a fledgling idea, said Marianne Talbot, founder and president. Her work with semi-comatose patients in a nursing home in the early 1990s led her to explore movement therapy and form the organization and dance company.

Response to the troupe has been encouraging, Talbot said. It has allowed the group to expand its performance schedule and reach out to more people.

During the first three years, the group performed once a year at the organization's annual benefit. In 2001, they have planned a 13-venue tour in Virginia, Maryland and Washington, D.C.

"It's different from other professional dance competitions because the performers play a large part in coming up with the themes and movement of the pieces," Talbot said.

Feedback from the dancers has shown Talbot that people with brain injuries experience many benefits from performance and practice, including improvement in balance and coordination, cognitive processing, muscle control and the ability to interact with others.

"On stage, they are their own advocates for their contribution to society,” she said.

Dancer Robert Domenichelli agrees that his five years with the group have been challenging and rewarding.

"It is something I hadn't attempted or thought about doing pre-injury. It has been more beneficial than I expected," he said.
Celebrating Rhythms of Hope

By MARLENA THOMPSON
Special to The Journal

The Second Annual Rhythms of Hope Event, next Friday at the Center for the Arts Concert Hall at George Mason University, will be a unique dance performance by an equally unique company.

Members of the Rhythm of Hope Dance Company are either developmentally disabled or brain-injured. The performers are remarkable not only for challenging their limitations for the sake of personal achievement, but also for creating a moving work of art for the benefit of the entire community.

The overall theme of the program is the acknowledgment of life’s struggles and the process of growth and rediscovery that takes place over time, according to Marianne Talbot, founder of the dance troupe.

Credit for the company’s success goes largely to Talbot, who in 1994 established the National Rehabilitation & Rediscovery Foundation (NRRF), which provides creative and innovative rehabilitation services to brain-injured and developmentally disabled individuals.

Talbot said her group’s complex, professionally executed productions demonstrate “the vulnerability of being human, the isolation of being different, the triumph of overcoming challenges and the hope for a more joyful future.”

Talbot has worked with people with special needs for many years. Having acquired a combined degree in dance and recreational/cognitive therapy, she worked as a recreational therapist for the developmentally disabled while still in graduate school. She later worked with people who sustained catastrophic brain injuries, helping them to develop life plans for the future.

Rhythms of Hope represents the marriage of Talbot’s art—dance and choreography with her vocation.

Talbot said the Rhythms of Hope Event will serve a dual purpose: “First of all, by dancing, the performers make a significant artistic contribution to the community. Secondly, they educate all of us as to what people with limitations can do.”

She also makes it very clear that the event is not a “recital” but a full-scale production requiring nearly a year of painstaking preparation.

In fact, the work schedule for the 17 dancers in the company (ranging in age from 15 to 59) has been grueling—rehearsals twice a week for two to three hours per session. (The group has been meeting in Chantilly, Va., at the Creative Dance Center, which has donated the use of its facilities to the troupe.)

Hard work notwithstanding, the determination to succeed is a powerful impetus for the company, as is testifed by the willingness of one troupe member to travel from Delaware and Chantilly every Friday and Saturday for rehearsals.

Talbot noted that, in creating an event of this scope, her dancers must put forth a tremendous effort to rise above such obstacles as cognitive deficits, memory gaps, lack of focus and concentration, and problems with motor skills and balance. For many brain-injured dancers, she said, the most difficult aspect of the experience is recollecting what they could easily accomplish before a stroke, tumor or accident ended a way of life.

Talbot has her own challenges, as no two rehearsals are ever the same. She must be flexible and prepared for every contingency.

The dance program will follow a lively jazz concert by recording artists Al Williams and Friends.

As Talbot conceives of Rhythms of Hope as a continuum, the performance will begin where last year’s left off. The entire company will perform the first dance, called “Rhythms of Hope.” The second dance, “Roots,”

Please see HOPE, C12
Rhythms of Hope

HOPE from C4

of Coincidence,” is a jazz number that describes the confusion and anger felt by the brain-injured person who can recall life before the injury. The third dance is a solo entitled “Letting Go,” performed by Talbot. It depicts the relinquishing of anger and pain — the “letting go” that is necessary to move forward.

The fourth dance, “It’s for You,” begins with a brief video in which an isolated character representing the company tries to make a connection with the surrounding world. The whole company will dance after the video concludes.

The fifth and final dance, “Children of the World,” is divided into three parts. In the first segment, five to seven children who are not part of the regular group will participate. The second segment includes the entire company. In the last segment, the dancers reach out to involve people in the community.

Talbot forewarns that if this year’s performance is as moving as last year’s, it’s likely to be a three-hanky night.

Talbot hopes that people understand that the significance of the Rhythms of Hope Event is that it is part of a process — a journey that continues through life. “The personal feelings that performers convey through their art are transformed into a universal message. We all of us perceive of ourselves as limited in some way. Dance is about breaking through self and other imposed barriers and reaching out — connecting and growing,” she said.

Happily, Talbot’s company of dancers is growing too. Because she is an advocate of inclusion, she welcomes as many newcomers as would like to take part in the troupe. Proceeds from the performance will go toward scholarships to sponsor individuals wishing to participate in the dance company, and toward the establishment of a fully accessible dance studio.

The Second Annual Rhythms of Hope Event will take place at 8 p.m. Nov. 20 at George Mason University’s Center for the Arts Concert Hall. Tickets are $20 adults, $10 children. For tickets or information, call the box office at (703) 993-8888. For more information about the National Rehabilitation & Rediscovery Foundation, call (202) 298-1259.
VITAE

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EDUCATION
Master of Arts in Education and Human Development, George Washington University, Washington, D.C., 1986

Bachelor of Arts, Eckerd College, St. Petersburg, FL, 1982

PROFESSIONAL CERTIFICATIONS
Certified Movement Analyst (C.M.A.) - Laban/Bartenieff Institute of Movement Studies
Certified Rehabilitation Counselor (C.R.C.)
Certified Case Manager (C.C.M.)
Certified Rehabilitation Provider (C.R.P)

PROFESSIONAL EXPERIENCE
1996 - Current
President & Founder, National Rehabilitation & Rediscovery Foundation, Inc., (NRRF),

1996 - Current
Private Practice, Northern Virginia; providing life care planning and expert testimony for individuals with catastrophic injuries

1990 - 1996
Private Practice, Northern Virginia; providing life care planning and expert testimony, cognitive rehabilitation, and therapeutic dance/movement classes for individuals with brain injuries, developmental and learning disabilities
1989 – 1995

Senior Case Manager, Brain Injury Services, (previously called Head Injury Services Partnership), Fairfax, VA

1989
Program Case Manager, New Medico Head Injury System - Lenox Hill, Boston, MA
1987 - 1989
Director, Cognitive/Recreation Therapy, Manor HealthCare - Arlington, REACH Unit, Arlington, VA

1986 - 1989
Research Fellow, National Institutes of Health, NINDS, Clinical Neuropsychology Section, Bethesda, MD

1986 - 1987
Director, Recreation Therapy, Ft. Washington Rehabilitation Center, Ft. Washington, MD;

1984 - 1986
Assistant Director Recreation Therapy, Manor HealthCare - Arlington, Arlington, VA

ACADEMIC GRANT AWARDS
Virginia Polytechnic Institute and State University – Graduate Research Development Grant; 2005

Virginia Polytechnic Institute and State University – Graduate Student Assembly Grant Award; 2004

GRANT AWARDS
2006
Program Director – Virginia General Assembly – one year grant to provide therapeutic dance/movement classes to individuals with brain injuries

Program Director – Alexandria Commission for the Arts Project Award

Program Director – Arlington County Regionals Grant – Arlington County

2004-2006
Program Director - Fairfax County Consolidated Community Funding Pool - Fairfax County Government Grant

Program Director – Arlington County Regionals Grant – Arlington County

Program Director – Alexandria Commission for the Arts Project Award

2003-2005
Program Director - Commonwealth Neurotrauma Initiative Grant

2003
Program Director – Alexandria Commission for the Arts Special Opportunity Award
Program Director - Alexandria Commission for the Arts Project Grant

2002
Program Director - Fairfax County Consolidated Community Funding Pool - Fairfax County Government Grant

Program Director - Arlington County Disability Services Board

2001
Program Director - Alexandria Commission for the Arts Project Grant

Program Director - Arlington County Disability Services Board

2000-2001
Program Director - Fairfax County Consolidated Community Funding Pool - Fairfax County Government Grant

Program Director - Fairfax-Falls Church Disability Services Board

1999
Artistic Director - Alexandria Commission for the Arts

Program Director - Fairfax-Falls Church Disability Services Board

1998
Program Director - Fairfax County Consolidated Community Funding Pool - Fairfax County Government Grant

Program Director - Fairfax County Community Funding Pool

1977
Program Director - Fairfax-Falls Church Disability Services Board

1996
Program Director - Fairfax-Falls Church Disability Services Board

PROGRAMS & EVENTS
Conference Coordinator – Creative HeArts Conference

Artistic Director - The Rhythms of Hope Event - Event created to celebrate the successes of individuals with disabilities through the performing arts
Artistic Director - *The Rhythms of Hope Dance Company* - 15 member company established for individuals with disabilities

Event Director – *Rediscovery 10K & 1 Mile Run/Walk*

**CURRENT PROFESSIONAL ASSOCIATIONS AND COMMUNITY INVOLVEMENT**
Advisory Council Member - *Ohio Regional TBI Model System Grant*, federally funded five year grant, Columbus, OH, Current

Board Member - *Eckerd College Alumni Board of Directors*, St. Petersburg, FL, Current

Executive Board Member - *Brain Injury Association of Virginia*, Richmond, Virginia, Current

President – *Northern Virginia Brain Injury Association*, Northern Virginia, Current

Member - *Society for the Arts in Healthcare* – Washington, DC, Current

Member – *Laban/Bartenieff Institute of Movement Studies* – New York, NY, Current

Member - *National Rehabilitation Association*, Current

Member – *National Dance Education Organization*, Current