The Effects of Intuitive Movement Re-embodiment on the Well-Being of Older Adults with Dementia: A Pilot Study

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The Effects of Intuitive Movement Re-embodiment on the Well-Being of Older Adults with Dementia:

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A thesis submitted for the degree of

Master of Dance Studies

at the University of Otago, Dunedin,

New Zealand

13 August 2018
Abstract

Background

This ethnographic research is a pilot study that explores the effects of ‘Intuitive Movement Re-embodiment’ (IMR), an original community dance and music program on the well-being of older adults with dementia. This original IMR creative methodology utilizes reminiscent music and the participants’ intuitive movements to construct a series of dance routines, through which the participants are guided to exercise their mind and body holistically. Underpinned by an ecological paradigm, the research design employs mixed methods to examine the participants’ internal Quality of Life and external Happiness, which together define the term Well-Being for this research.

Methods

From March to May 2018, 10 weekly IMR sessions were conducted to three groups of participants recruited from the Gibson Day Unit (Dunedin Public Hospital) and Enliven St Andrews Care Home: Group 1 (Mild to Moderate Dementia); Group 2 (Moderate Dementia); Group 3 (Advanced Dementia-D4). The 26 volunteer participants were New Zealanders aged from early 60s to mid-90s whose interest and past learning history in music and dance were exclusionary to the recruiting process. The weekly scores of their self-rated Quality of Life were collected using the WHO-5 questionnaire. Perceived benefits gathered through observation and interview were coded into three themes of Happiness–Memory Recollection, Social Interaction and Enjoyment.

Brief Overview of Results

In the quantitative analysis, the Well-Being scores of 22 participants who attended no fewer than six sessions were calculated and presented in individual group graphs. The paired $t$-test
showed that the participants’ Quality of Life improved minimally at the end of the intervention (session 10) without statistical significance. However, statistically significant improvement was found after session 6. The scoring patterns also indicated that the Quality of Life of Group 1 and 2 decreased after session 6. Hence, in any future study an interval of three weeks between two continuous interventions of five weeks is recommended for Group 1 and 2, while a continuous intervention is suggested for Group 3. A total twenty weeks of intervention is suggested for all groups.

The qualitative analysis showed the IMR program provided a sense of aliveness, fun, humour, playfulness and imagery that motivated the study participants to dance and interact with joy. However, most participants with mild to moderate dementia did not react positively to the high frequency of repetition and continuous challenges presented in a session. New creative elements for music, movement and peer interaction are suggested to be introduced constantly to enhance the positive outcomes. Simple and relaxing dance exercises can be arranged between the set IMR routines to allow the participants to enjoy the session more comfortably.

Conclusion

In conclusion, respective modifications catered for older adults suffering from distinct stages of dementia are highly desirable. To achieve the best possible results, the IMR program should be re-designed and offered in a way that can be continuously adjusted to meet the needs of the participants and affiliated institutions. A Randomized Controlled Trial (RCT) with a larger sample size is recommended to further explore the effectiveness of the modified programs.
I dedicate this work to my sister Ying,

whose courage and determination have pulled her through

the hurdle of anti-NMDA receptor encephalitis.
Acknowledgements

Thank you, Papa and Mama, for your unconditional love and support.

Thank you, Ms Ali East and Associate Professor Yoram Barak, for believing in my creativity and guiding me through this experimental journey.

Enormous appreciation to my colleagues:

Mary, Sue, Angeline and Maggie (Enliven St Andrews Care Home);
Leonie, Christine, Denise, Nikita, Midge and Maggie (Gibson Day Unit).

Lots of love to my dearest friends who sang and danced with me,

it was the happiest time.
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1. Introduction:

**Improving Well-Being for Older Adults with Dementia**

via Intuitive Movement Re-embodiment (IMR)

**Preface:**

The young Maria, whom was thought of as having no discipline and no potential to be a nun, bonded with the von Trapp family of seven motherless children through music and dance (The Sound of Music, 1956). In the movie, music and dance successfully break the glass between her and the rebellious children, eventually melting the icy cold widower Captain Georg von Trapp. For decades, *The Sound of Music* has wet the eyes of audiences with the story of a beautiful family in Austria who were forced from their beloved home during the cruel World War II. In the same way, the seniors suffering from dementia are often removed from their homes against their will. *Home*, is often missed by those residing in the care homes—“I want to go home” (cited in Son et al., 2002, p. 263). As a pianist and dancer—also living far away from my home in Malaysia—I was inspired to use music and dance to replicate the homely experiences—memories, happiness, togetherness—for older adults with dementia.

This chapter provides an introductory outline of the research. Firstly, it introduces the birth of the pilot study and the creative methodology which I have named ‘IMR’—Intuitive Movement Re-embodiment. Secondly, it summarises the impact of the prevalence of dementia within society, and the benefits of music and dance in improving the well-being of seniors with dementia. Finally, it presents a summary of the research objectives and hypothesis.
1.1 Research Background

1.1.1 Volunteer Duty & Intuitive Movement Re-embodiment – ‘IMR’

This ethnographic research is a subsequent development of my weekly pianist’s duty at the Enliven St Andrews Care Home, Dunedin¹ (see Appendix II, p. 124). Since July 2017, every Saturday morning, I have biked to Caversham to play music for the residents in ‘The Cedars’ dementia ward. Eventually, the volunteer duty became a community music and dance program. Through playing familiar folk songs and tunes, I observed and recorded the residents’ non-verbal responses to the music; later, the selected gestures and movements were constructed into dance routines that I taught back to them, incorporating the same familiar music repertoire that I had played previously. After five weeks of observation and three dance sessions, the ‘mini’ project was completed successfully with positive observed outcomes such as improved mood and enhanced social interaction.

Under the guidance of dance lecturer Ms Ali East and psychiatrist Associate Professor Yoram Barak, I have developed the Intuitive Movement Re-embodiment (IMR) program that can be offered in care homes and clinical institutions. Ultimately, this pilot study aims to explore the effects of the IMR program on the well-being of older adults with dementia who suffer from cognitive impairment, functional decline and behavioural disturbances.

1.1.2 Dementia

In 2016, Dementia affected 62,287 people in New Zealand (www.alzheimers.org.nz). The total number of dementia sufferers has risen by 29% in the last six years; by 2050, it is estimated to reach 170,212. Meanwhile, it ranks as the fourth leading cause of death among the population aged 65 years and over in the country. “Dementia is one of the major causes of disability and

¹ See online article https://psotago.org.nz/news/sharing-songs-making-music/
dependency among older people worldwide” (cited in WHO, 2017). Around 50 million people have dementia worldwide, with nearly 60% of them living in countries of low and middle income; nearly 10 million new cases are estimated every year (Livingston et al., 2017). Now, in the general population aged 65 and above, about 15 per 100 people have dementia. By 2030, it is projected that the total number of people living with dementia will reach 82 million worldwide, and 152 million by 2050. However, contrary to popular belief, dementia is not a direct consequence of aging—it does not exclusively affect older people. In fact, young onset dementia, which occurs before the age of 65 years, accounts for up to 9% of total cases (WHO, 2017).

*Major Neurocognitive Disorders* is the latest name for dementia based on it being a neurological disease (Livingston et al., 2017). It is a syndrome identified by a series of signs and symptoms, which have no specific order of appearance. In general, it is caused by over 70 diseases such as Alzheimer’s (60-80%), vascular dementia (about 10%), dementia with Lewy bodies, mixed dementia, Parkinson’s disease, frontotemporal dementia, normal pressure hydrocephalus, Huntington’s disease and Wernicke-Korsakoff Syndrome (www.alz.org). Statistics show that dementia-related cognitive impairment is closely associated with lifestyle-related risk factors: physical inactivity, obesity, unhealthy diet, tobacco use and abusive consumption of alcohol, diabetes and midlife hypertension (Livingston et al., 2017; WHO, 2017). According to the guidelines provided by the National Institute on Aging (www.nia.nih.gov) and the Alzheimer’s Association (www.alz.org), core clinical criteria for all-cause dementia are (Etgen, 2015):

I. Interference with the ability to function at work or usual activities.
II. Representation of a decline from previous levels of functioning and performing.
III. Lack of explanation by delirium or significant psychiatric disorder.
IV. Presence of cognitive impairment (combination of history-taking from the patient and a knowledgeable informant plus an objective cognitive assessment).

V. Cognitive or behavioral impairment involves a minimum of two of the following domains:

a. Impaired ability to acquire and remember new information.

b. Impaired reasoning and handling of complex task, poor judgment.

c. Impaired visuospatial abilities.

d. Impaired language.

e. Changes in personality, behavior, or comportment.

Unfortunately, nowadays there is still no treatment available to cure dementia or to alter its progressive course (WHO, 2017). The lack of awareness and understanding of dementia has resulted in significant stigmatization and barriers to diagnosis and care. Support and care from the carers and family, are hence of utmost importance for the sustainability of the sufferers’ living and daily activities.

The prevalence of dementia is overwhelming for both the sufferers and their caregivers. More often than not, the affected family and carers suffer from physical, emotional and economic pressure, and need support from the health, social, financial and legal systems (WHO, 2017). The cost for a dementia sufferer’s stay in a care home, including medication and treatment, can be extraordinarily expensive since almost all kinds of dementia are irreversible and the sufferers deteriorate over time. In broad terms, social and economic impacts brought by the prevalence of dementia are direct medical and social care costs, and indirect costs of informal care (WHO, 2017). In 2015, the total global cost of dementia was roughly US$818 billion, which was 1.1% of the global gross domestic product (GDP). Nearly 85% of costs are related to family and social, rather than medical care (Livingston et al., 2017).
1.2 Improving Well-Being through Music & Dance

1.2.1 Well-Being of Older Adults with Dementia

The aging population is growing exponentially worldwide (Von Humboldt & Leal, 2015). Notably, the oldest segment of 80 years and above is expanding more quickly than the younger age group of 60 to 79 years. The well-being of elderly people (60 years and above) is more specifically defined by the degree to which a person is ‘fully functioning’ with autonomy, determination, interest, sense of fulfilment and hope (Wakeling & Clark, 2015). Happiness, or in lay terms, ‘well-being’ is now more popularly theorized as ‘subjective well-being’ or ‘successful aging’ in scientific terms and is on the frontier of psychosocial and biomedical research. Successful aging can regulate emotional stress in the genesis of somatic manifestations of aging, and have positive effects on the dynamics and the rate of age-related changes. In clinical research, Quality of Life is often utilised as a useful and psychometrically valid self-report rubric to measure the well-being of elderly people.

Seniors with advanced dementia most commonly resort to a care home when they cannot safely be left alone in their own homes. Institutionalization in a care home can reduce the distress level of family members and potentially prolong the sufferers’ functional state by improving their well-being (Mendez & Cummings, 2003; Jing et al., 2016). However, the prevalence of dementia is significantly more critical for elderly who participate less in social life and gradually lose awareness of themselves and others (Braüninger, 2014). Research has revealed that the elderly population residing in the care homes enjoy a lesser sense of well-being than those living in the community (Jing et al., 2016; Lecce et al, 2017). The decline in memory and cognition has further led to their difficulty in learning about and interpreting new environments (Son et al., 2002).
As a result, a wide variety of daily activities to maintain the residents’ physicality and improve their well-being is often provided at the care homes. The activities may be conducted in the form of physical exercises, leisure activities, arts and religious practice; for instance, walking, reading, painting, singing and praying. Among them, physical activities have been found to produce significant positive effects on the Quality of Life in people with dementia (Jing et al., 2016). Research has shown that constant physical engagement can help to increase the volume of the hippocampus with preserved neuroplasticity, and as a consequence, improve balance and cognitive impairment that has resulted from age-related degeneration in brain structure (Li, 2012; Rehfeld et al., 2017). Notably, dancing has proven more effective than aerobic exercises in improving balance and brain structure of the elderly people (Rehfeld et al., 2017).

Apart from physical activities, arts researchers Wakeling & Clark (2015) recommend that arts participation can improve the well-being of elderly people concerning memory, recollection, reminiscence and anticipation of the future. Art-based activities offer treatment primarily through nonverbal means that are particularly effective for people with dementia, whose communicating capabilities are declining or absent (Odell-Miller et al., 2006). By importing visual, audio and tactile stimulation to the brain, arts activities are effective in decreasing the prevalence of dementia (Stewart, 2004; Almeida et al., 2014). Also, psychotherapist Rylatt (2012) suggests that creative expression enables people with dementia to initiate activity, which is often inhibited by the neurological deterioration in the frontal lobes. Through the use of arts materials, people with dementia gain insights into their difficulties in the process of seeking resolutions. Ultimately, arts participation provides people with dementia the motivation to pursue well-being: to maintain a positive outlook and a sense of purpose in life; to gain autonomy and control; to enhance positive social relationships, competence and a recognized sense of accomplishment (Wakeling & Clark, 2015). In fact, those who have
bonded well with their arts therapists in the first 6 months of treatment demonstrate a tendency to continue and achieve better outcomes after two years than those who did not (Odell-Miller et al., 2006).

1.2.2 Dance as a Promoter of Physicality & Well-Being

To the surprise of many people, economics and finance professor Rafi Eldor continues to live healthily and actively through dancing after being diagnosed with Parkinson’s disease 8 years ago (www.dancingthroughparkinson.com). The disease has been continuously progressing but unbelievably imposes minimal impact on his physical and mental abilities. “Dancing saves my life…When I’m dancing I feel [like] a winner”, he says2. Despite the initial diagnosis of having only 5 years of healthy living as suggested by the doctors, Eldor has now become a regular competitor in amateur ballroom dancing.

Dancing to music, a combination of arts and physical activity, is effective in improving cognitive functioning and reducing aphasia and agnosia (Braüninger, 2014). If exercised as a kind of body psychotherapy, it can enhance well-being, mood concentration and communication in people with dementia. As a type of patterned and rhythmic movement, dance can also help older people to achieve decreased risk of falls and improved balance, lower body endurance, muscle power, and bone mineral density (Earhart, 2009; Murrock & Groar, 2014; Rehfeld et al., 2017). Dance therapist Earhart (2009) suggests that regular dancing can effectively activate body parts that are weakened by dementia, which is a process of gradual and progressive loss of abilities. If exercised on a regular basis, dance can be a useful integral part of the intervention program to maintain the sufferers’ physical performance and health. Around 90% of the clinical practitioners in aged health suggest that Dance/Movement Therapy should be regularly offered on an outpatient basis in the institutions.

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2 See online video https://www.youtube.com/watch?v=ak4smTliKUg
Cognitive stimulation can benefit people with dementia by exercising their minds. Dementia experts Mendez & Cummings (2003) suggest that “those who continue to exercise their minds may be more likely to live longer without advanced dementia” (p 587). Such stimulation can be moderate and relaxing activities such as social interaction with familiar people and reminiscence therapy. “Reminiscence therapy uses the more intact remote memories of the demented patient to maintain a connection with the past” (cited in Mendez & Cummings, 2003, p. 587). Music, in particular, can stimulate the implicit memory of people with dementia through resonance with their cultural and historical backgrounds (McDermott, 2014; Raglio et al., 2015). Dementia experts and music therapists, McDermott et al. (2014) reflect that “many [dementia] residents explained [how] music has always been a part of their daily life” and have “acknowledged the residents’ recognition of familiar music and retained memory of well-known songs” (p. 711). Music-based interventions, including listening to and singing reminiscent music, can stimulate their memories by calling upon their lived-experiences and personal histories (McDermott et al., 2014).

Movement and dance are also closely associated with childhood and adulthood memories (Lapum & Bar, 2016). Aging experts Guzman-Garcia et al. (2013) observed that their dementia-suffering participants’ implicit memorizing and learning capabilities were improved after the dance interventions. Also, Dance/Movement therapists Coaten & Newman-Bluestein (2013) suggest that dance can stimulate “[the] remaining capacities [to] come to the fore, enabling these to be enhanced collectively” (p. 680). Referring to her experience of working with people with dementia, professional dancer Bar recalls, “[the participant] appeared to have difficulty speaking…all it took was a waltz and pink scarf to turn her into a dancer…I didn’t know she could move like that” (cited in Lapum & Bar, 2016, p. 32). For people with dementia, dance can be a motivating and enjoyable stimulus to exercise.
1.2.4 Music & Dance as Mood Moderators

Music has been found to considerably improve the mood of people with dementia with immediate and short-term effects. “There is a region of the brain…[that] seems less affected by dementia, [wherein] accessibility of music is so important”, the spouse of a person with dementia reflects (cited in McDermott et al., 2014, p. 710). Likewise, dancing to the music has been proven to have antidepressant effects by producing endorphins that lift mood, spark a person’s interest in moving and consequently promote enjoyment (Murrock & Groar, 2014). According to music therapists Punkanen et al. (2014), people with dementia can express strong emotions and release anxiety through spontaneous and improvised movements. Even for the most vulnerable ones who are unable to dance, “the joy of dance can be experienced simply by viewing it” (cited in Lapum & Bar, 2016, p. 33).

1.2.5 Music & Dance as Social Co-ordinators

For people in the later stages of dementia, the music-based activity can facilitate human connectedness (McDermott et al., 2014). Music therapist Emma reflected: “as she [the sufferer] deteriorated, these pockets of connection would become smaller and smaller…music was one of the only things she was engaging with” (cited in McDermott et al., 2014, p. 712). The prolonged eye contact, head turning, reaching out for instruments or changes in facial expression during the activity can help to build an interactive relationship. Notably, singing favourite songs together improves the familiarity and closeness of the people with dementia with staff and family.

Similarly, dance is often an interactive activity that significantly improves communication, friendship and social interaction among older adults (Earhart, 2009; Guzman-Garcia et al., 2013; Thøgersen-Ntoumani et al., 2017). Coaten & Newman-Bluestein (2013) suggest that dance can act as a bridge between people with dementia and carers with fun and
caring interactions that lead to a meaningful understanding among them. Guzman-Garcia et al. (2013) agree: “intuitively dancing would seem likely to improve social interaction for people with dementia, including their interactions with staff, which would include human touch beyond that required during personal care” (p. 923). Ultimately, dance provides a sense of togetherness that cannot be measured clinically.
1.3 Summary, Research Objectives & Hypothesis

This Master of Dance Studies research is a further extension of a successful smaller project, in which the original creative methodology—Intuitive Movement Re-embodiment (IMR)—was created to cater to the physical and psychological conditions of older adults with dementia. The IMR method utilizes reminiscent music to stimulate the participants’ natural movements, which are later selectively constructed into a series of dance routines. Notably, the reminiscent element of music and movement is the key component to motivate the participants to move and interact more. Research has revealed that the creative stimulation alongside their daily routine, can enhance the general well-being of people with dementia. In particular, music and dance interventions can provide several beneficial outcomes such as memory and cognitive stimulation, mood moderation and social interaction. Hence, this pilot study aims to explore:

I. The effects of the IMR program on the subjective well-being of older adults with dementia through investigating their self-rated Quality of Life.

II. The benefits of the program in respect of memory stimulation, mood moderation and social interaction through the exercise of on-site observation and interview.

III. The feasibility of conducting a future Randomized Controlled Trial (RCT) based on the research results such as statistical significance in Quality of Life and qualitative benefits; and recommended sample size.

IV. Advancing recommendations for program modifications, facilitation approach and research design.

Hypothesis of the study:

The creative employment of familiar music and intuitive movement can improve the well-being of older adults with dementia and increase their joy.
1.4 Thesis Structure

In the Literature Review chapter, literature selected from several academic fields—medicine, neuroscience, physiology, psychology, art therapy, sociology, community dance and philosophy—are presented to demonstrate the significance of the creative methodology IMR in contributing knowledge to the non-pharmacological treatment for people with dementia.

The Methodology chapter explains how the IMR program was designed and implemented. Participant recruitment, data collection and analysis, ethical considerations and research limitations are also covered.

The Results chapter reports both quantitative and qualitative findings in relation to the stated objectives.

The Discussion chapter discusses the findings in comparison with the previous literature. Debatable issues in collecting questionnaire information from the dementia suffering participants are elaborated on.

The Further Suggestions chapter presents the suggested modifications of the IMR program and recommended research design for future study.
2. Literature Review:

Intuitive Movement Re-embodiment

*Intuitive Movement Re-embodiment* (IMR), the creative methodology of the research, employs reminiscent music to stimulate intuitive movements that are reproduced as dance routines and re-embodied by the participants. This chapter sheds some light on the significance of the IMR method by reviewing literature from a range of interdisciplinary fields: medicine, neuroscience, physiology, psychology, art therapy, sociology, community dance and philosophy. Firstly, it explains the benefits of reminiscent music for people with dementia and how it effectively motivates them to move spontaneously. I draw on the Dalcroze Eurhythmics theory to construct the musical component of the program. Secondly, the demonstration of intuitive gestures and movements indicates a sense of aliveness in people with dementia. Thirdly, the benefits of the concept of movement re-embodiment are illustrated respectively. In order to construct the dance routines, the flow-space-weight-time qualities of Laban Movement Analysis (LMA) are employed. Finally, a summary is presented (Wyman-McGinty, 1998; Eddy, 2002; Mendez & Cummings, 2003; Stewart, 2004; Van de Winckel, 2004; Berrol, 2006; Bergen & Feldman, 2008; Bickhard, 2008; Gallagher, 2008; Meteyard & Vigliocco, 2008; Sheets-Johnstone, 2008¹; Sheets-Johnstone, 2008²; Sheets-Johnstone, 2009; Bann et al., 2010; Homann, 2010; Cheesman, 2011; Lee, 2011; Sheets-Johnstone, 2011; Blum, 2012; Craft, 2012; Habron, 2014; Clark & Warren, 2015; Lukianova & Fell, 2015; Wakeling & Clark, 2015; Bench, 2016; Barry, 2017; Fitzgerald, 2017; Payne, 2017; Young, 2017).
2.1 The Sound of Music

Music and rhythm find their way into the secret places of the soul.

Plato (cited in Van de Winckel et al., 2004, p. 254)

The volunteer pianist duty did not occur as I initially had envisioned it would. I did not expect that the residents with dementia would be my primary audience every Saturday until the moment I set my foot in ‘The Cedars’, the dementia ward of Enliven St Andrews Care Home. That morning, commencing with a warm welcome from the staff, was pleasant yet nerve-racking. My lack of piano practice for several years and my unfamiliarity with the environment, had embarrassingly resulted in stiffened fingers and poor playing. However, I will never forget that amazing scene—the residents’ singing the lyrics with fantastic accuracy, along with their spontaneous dancing and memory recollection—which made this a great first experience as the residents enjoyed the sharing of their life stories associated with the tunes.

2.1.1 Reminiscent Music as a Memory & Sensory Stimulator

For elderly people, listening to music provides them with happiness and life satisfaction (Wakeling & Clark, 2015). Music participation can facilitate a ‘strong identity recognition’ among them alongside ‘well-being and a sense of purpose’, which potentially improves the occurrence of loss of identity following retirement. From the perspective of neuro-psychology, ‘long known’ and ‘recently known’ songs correspond broadly to musical semantics and episodic memory; most robust data is associated with ‘long known’ songs or reminiscent music (Meteyard & Vigliocco, 2008; McDermott et al., 2014; Raglio et al., 2015). Notably, familiarity with the reminiscent music unlocks implicit memories and other remaining cognitive capacities in people with dementia (Clark & Warren, 2015; Biggar, 2017).
Firstly, musical memories activate the human memory systems mediating the autobiographical record of certain fragments of life, such as episodic memory and the context of when a piece of music was heard (Blum, 2013; McDermott et al., 2014; Clark & Warren, 2015). Rather than recalling a specific piece of memory, such an approach provides the ‘trait’–a trans-experiential linkage between the past and present–that can be gained through listening to a piece of reminiscent music (Wakeling & Clark, 2015). Psychoanalyst Serge Leclaire (1998) asserts that a particular trait is formed of respective types of multimodal perceptual fragments, which act as markers for experiences in the past and have a certain type of affective intensity. In other words, the proximity of an art activity (such as the chorus of a piece of music) linked to a particular trait can trigger the actualisation of perceptual fragments from the past.

The qualitative elements of reminiscent music such as melody and rhythm act as a kind of auditory catalyst to stimulate the generating process of virtual self, also the re-identified I am connecting the present ‘self’ to the former one (Wakeling & Clark, 2015). Rather than forming a whole fresh new ‘self’ or returning to the old one, virtual self is the redefined self of the past with new qualities. Philosopher Al-Saji (2004) says, “it is the past itself that seeks to come into the present, to be actualised and made conscious…but since not all of the past can be actualised in each perception…something else [can] be at play–attracting certain memories and certain planes of memory rather than others” (cited in Wakeling & Clark, 2015, p. 25). Generated through a process of re-identification of individuality and surrounding contexts, the virtual self assists elderly people to “navigate the process of aging in later life with enhanced subjective well-being” along with a sense of purpose, autonomy and social affirmation (cited in Wakeling & Clark, 2015, p. 23).

Secondly, the music recalls our knowledge about the world through semantic memory and recognition of a familiar tune. Singing, a form of semantic activity, is assumed to be effective in stimulating memory and sensory performance (Meteyard & Vigliocco, 2008).
Linguists Meteyard & Vigliocco (2008) point out that such stimulation is activated without the interference of other cognitive processes—“semantic content necessarily and directly recruits the sensory and motor systems used during [the] experience” (p. 294). The semantic-sensory-motor relation could be the result of the high association between certain semantic domains and modalities; or, the fast access to sensory-motor information during the activity may be the cause of the automaticity in the activating process.

For people with dementia, highly overlearned skills such as language, significantly resist brain damage (Stewart, 2004). The pre-frontal lobe, the region that governs motor and speech functions, remains relatively intact until the advanced stages of dementia. In singing, the capability of people with dementia to recall lyrics is excellent compared with other reminiscent activities (Van de Winckel et al., 2004).

Thirdly, motor skill sequences learned in the past such as procedural memory and dancing, can be activated by musical reminiscence. The combination of singing and moving to reminiscent music can provoke a series of strong connections between real and imagined past, present and future in people with dementia (Wakeling & Clark, 2015). The kinetic knowledge along with the physical learning process of singing or dancing, enables one to re-identify I move and I do (Sheets-Johnstone, 2011). Phenomenological philosopher Merleau-Ponty (1908-1961) once said, “Movement[s] [are] learned…to allow oneself to respond to their call” (cited in Sheets-Johnstone, 2011, p. 217). Specifically, if given a piece of music played with significant rhythms and repetitive patterns, the implicit memory associated with certain movements and physical experiences, can be re-awakened with greater effectiveness (Blum, 2013).

Art therapist Stewart (2004) reveals that an injured brain tends to process information habitually. Consistent repetition of forms and patterns is effective in improving the passivity
of people with dementia in receiving information. In music, duplicate elements and structured patterns of melody and rhythm contribute to the development of memory as transitional objects in brains. Psychiatrist and psychoanalyst Blum (2013) highlights that “music with significant repetition and hierarchical structure is easier to remember than music lacking these characteristics” (p. 125). As evident in the field of neurophysiology, the activity of brain neurons is intrinsically rhythmic—“rhythm is thus a very basic aspect of the functioning of human beings” (cited in Blum, 2013, p. 125). The rhythmic characteristic of neurons enables them to become control centres for the timing of various bodily functions, for instance, heart and lung rhythms. Therefore, our bodies tend to react and respond to sounds with significant repetitive rhythms.

2.1.2 Reminiscent Music as an Emotional & Social Moderator

Alive Inside: A Story of Music and Memory (2014), an award-winning documentary film about the ‘Music & Memory’ program, demonstrates the significant effects of favourite reminiscent music in cheering up people with advanced dementia (Biggar, 2017). In the program, music recorded in an iPod is directly delivered to their ears through the headphones. Cohen, the program founder, discovered that his dementia-suffering clients “began to sway and dance and sing along, transported to another time and way of being” (cited in Biggar, 2017, p. 11). The correct music selection instantly liberates people suffering from dementia from their current reality with calming effects, particularly those who refrain from engaging in any physical activity and spend most of their time sitting.

The effect of musical memory in assisting in dealing with anxiety is underscored by Blum (2013), who concludes that “music [as] the food of love is less poetic license than part of our endowment as a species” (p. 129). Clark & Warren (2015) agree and add, “Our favourite songs transport us largely by conjuring surrogate emotions” (p. 2123). In the film Alive Inside,
neurologist Professor Oliver Sacks reveals that the part of the brain that processes music, is the last one to lose function in the case of Alzheimer’s disease – “Music is the back door to the brain” (cited in Biggar, 2017, p. 11). Numerous benefits of the ‘Music & Memory’ program have been reported: about 20% reduction in antipsychotic use; and an 11% increase in improvement of behavioural and psychological symptoms of dementia, including agitation and aggressive behaviour.

Other than the individual context, music also fosters social relationships if played in a community setting wherein experience, sharing and communication are available. Blum (2013) suggests, “listeners may be more likely to experience chills in listening that is communal, as at a concert, or participatory, as compared to individual listening” (p. 124). The musical form of communication in a mother-infant relationship, such as the sharing of heartbeats, has been found to be the basis of musical participation, which is commonly practiced to foster group solidarity (Sheet-Johnstone, 2011; Blum, 2013). The interactive activity inclusive of listening to the music or singing together, nurtures mutual understandings among human beings, especially when performed with movements such as clapping and waving (Gallagher, 2008).

What we do know is that, as the chemical window closed, another awakening took place; that the human spirit is more powerful than any drug—and THAT is what needs to be nourished: with work, play, friendship, family. THESE are the things that matter. This is what we’d forgotten—the simplest things.

(cited in the film Awakenings, 1990)

After a failed experiment on L-DOPA, the drug that had ‘awakened’ the catatonic patients for only a brief period, neurologist Dr Malcolm Sayer (loosely based on Professor Oliver Sacks who wrote the script) subsequently discovered the immense effects of music therapy on the brains of patients who suffer from neurological diseases. In a scene, his patients
manage to feed themselves almost normally when hearing their favourite music; those who show no interest in a particular style of music, remain ‘asleep’. Toward the end of the highly acclaimed film *Awakenings* (1990), he concludes that humanistic approach such as music is the best stimulus to inspire the Parkinson’s patients to move.

2.1.3 Dalcroze Eurhythmics

For the musical component of the IMR program, I draw from the *Rhythmics* concept of the *Dalcroze Eurhythmics* theory (Mead, 1986; Juntunen & Hyvönen, 2004; Habron, 2014). Created by composer and music educator Émile Jacques-Dalcroze (1865-1950), the Eurhythmics method was initially intended to provide music pedagogy in combination with natural spontaneous movements. Since the early 20th century, it has been applied as music therapy for disabled children. The system continues to develop and has reached out to palliative treatment in HIV/AIDS and gerontology. For older adults, it is particularly effective in regulating gait, improving balance, and reducing the prevalence and risk of falls. *Music therapy*, on the other hand, has been popularly used in fostering the well-being of people with learning and physical disabilities, brain injury, mental illness and trauma. According to the World Federation of Music Therapy (2014), Music Therapy is defined as:

> The professional use of music and its elements as an intervention in medical, educational, and everyday environments with individuals, groups, families, or communities who seek to optimize their quality of life and improve their physical, social, communicative, emotional, intellectual, and spiritual health and wellbeing.

(WFMT cited in Habron, 2014, p. 92)

In 1930, Jacques-Dalcroze highlighted the potential for Eurhythmics to be employed in the practice of music therapy. He said, “if nerve specialists would be good enough to study my experiments carefully, they would speedily recognize the therapeutic value of exercises that
control muscular contraction and relaxation, in every shade of time, energy and space” (cited in Habron, 2014, p. 96). He additionally asserted that the liberation of innate responses of music and the emerging sense of creativity from within, can lead to feelings of freedom and joy. In summary, Eurhythmics is composed of three interrelated categories (Habron, 2014):

I. Rhythms: works on time-space-energy relationships common to movement and music by means of exercises using movement, improvisation and highly focused listening.

II. Aural Training (solfège): uses movement, improvisation and the voice to assist in aural development and understanding.

III. Improvisation of all kinds—vocal (solfège, vocalised sounds, and words or poems), instrumental and in movement: works on developing creative and spontaneous expression.

I selectively employ the Rhythmic concept, which has three main concepts with different qualities:

<table>
<thead>
<tr>
<th>Time Concepts</th>
<th>Energy Concepts</th>
<th>Space Concepts</th>
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<tr>
<td>Tempo: fast/slow</td>
<td>Dynamics: loud/soft</td>
<td>Sound &amp; Silence</td>
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<tr>
<td>Tempo beat</td>
<td>Accented/unaccented</td>
<td>High/low</td>
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<tr>
<td>Duple/triple feeling</td>
<td>Changes in dynamics</td>
<td>Direction of Melody</td>
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<td>Going up &amp; down</td>
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<tr>
<td>Changes in tempo</td>
<td>Articulation: staccato/legato</td>
<td>Steps, leaps</td>
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<td>Fundamental movements:</td>
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<td>Patterns: Sol La Sol; Mi Re Do; Do Mi Sol</td>
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<td>walk/run/slide</td>
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In the Eurhythmics method, inner hearing enables the listeners to make up sound images that serve as a base for reading and writing (Junetunen & Hyvönen, 2004). Jacques-Dalcroze
highlighted that physical experience could enhance musical consciousness, which can be developed through repeated experiences of ear, voice and movement of the whole body. The action of perceiving music depends on aural sensations completed by muscular sensation. When listening to a piece of sound, our eardrum receives it as tactile vibrations that resonate through the body; the stimulus to mind arouses visual, tactile, gustatory, and even olfactory imagery to a certain degree. “Listening to music is thinking and the body movement that comes out of it is a completed emotion or thought” (cited in Juntunen & Hyvönen, 2004, p. 210). Through moving to the music, the act of listening is a form of thinking embodying the mind-body connection, which will be discussed in the next section.

Rather than focusing on passing down the technique required to play an instrument, Jacques-Dalcroze explored the possibilities of incorporating natural movements into the musical learning process (Juntunen & Hyvönen, 2004). Hence, his teaching method develops bodily knowing and an awareness of the physical demands of performing. Bodily knowing, or tacit knowledge, refers to the holistic sense through which we understand ourselves as a whole, including musical knowing and feeling of self. For instance, tacit knowledge refers to the tactile sensations and stream of kinaesthetic flow through the fingers that are often neglected in piano playing; on the other hand, the focal knowledge refers to the moving fingers.

In skill-based movements, both tacit and focal knowledge are in balance. While performing movements, we acquire bodily knowledge through observing our own movements and paying attention to our kinaesthetic sensations (Juntunen & Hyvönen, 2004). When mind and body are connected, the dancers move with the pulse of the music; the musical qualities–time, space and energy–should be reflected in the movement. On the contrary, excessive intellectual thinking can result in an imbalance between the intellectual and sensing, which is arrhythmics–the inability to master rhythmic movements.
2.1.4 Summary

In summary, reminiscent music activates the human memory systems mediating the autobiographical record, knowledge about the world and learned motor skill sequences. Listening to, singing and moving with reminiscent music catalyse the generation of a virtual self, which is a new identity connecting the past and present. Such a process can be effectively activated by repetitive elements of melody and rhythm that form regular patterns in the music. Also, reminiscent music can act as a gentle agent to calm emotions and stimulate positive responses from people with dementia. If played in a community setting, it can even foster social relationships amongst the people who sing and move along with the music together. Moreover, the gestures and movements stimulated by meaningful music, not only express a person’s mind, but also promote interaction with other people. The musical component of the creative methodology IMR was informed by the Rhythimics concept of the Dalcroze Eurhythmics theory created by Émile Jacques-Dalcroze (1865-1950). Through the incorporation of spontaneous movements, the music can serve as an active catalyst in boosting the mind-body connection of people with dementia.

The following section will illustrate the vital role of intuitive gestures and movements played in the IMR program.
2.2 Gestures as Stimulated Intuitive Movements

Gesture, if performed as a form of sign language, can improve our capability of expressing thoughts and feelings beyond words (Von Humboldt & Leal, 2015). For centuries, it has always been a traditional yet innovative choreographic theme in professional dance. In classical ballets such as Swan Lake (1877) and Giselle (1841), mimed gestures are often performed as silent narratives to convey messages that cannot be explained in words. Modern dance choreographer Paul Taylor (1930-) blended natural gestures with traditional dance techniques. He described his feelings while performing others’ gestures: “I can feel [the] steps that someone else is doing in my own body” (cited in Berrol, 2006, p. 309). In 1994, another choreographer Bill T. Jones (1952-) presented Still/Here, an experimental work extensively employing simple gestures (Berrol, 2006). Like Taylor, Jones (1996) embraced the profound feeling of dancing gestures:

…like no movements I’ve ever made…imbued with their genesis. They’re coming from their source, so specific, so charged…the notion of mortality. Because that’s something we all share as human beings…My experience. Your experience. When do I become the other? When do you become the other? When do we feel comfortable to say ‘us’ ‘you’, ‘me’, ‘we’?

(cited in Berrol, 2006, p. 312)

Gesture, simple and humble as it is, reflects how the mind thinks and the history of a body without using words. It is a symbol of the reaction responding to an intersubjective experience, which normally contains the elements of the environment and even a verbal counterpart (Smith, 2002). “The gesture itself lies beyond words, but without its presence, words stand devoid of context” (cited in Smith, 2002, p. 1). For philosopher Merleau-Ponty, gesture emerges as an integrated expression that draws all forms of senses into a response.
Hence, the employment of gestures is popular in the area of performing arts, especially dance and drama wherein body language acts as a creative communicative agent.

Gesture, also a form of intuitive movement, can indeed inspire innovative and powerful communication that intimately connects the movers and audience. It has the “creative power to stimulate reactions [and] bring to the surface patterns of habituated responses articulating rules needed for the given communication to occur successfully” (cited in Smith, 2002, p. 4). Based on their functions in coordination with sound, there are two broad categories of gestures (Liao & Davidson, 2016):

I. Direct gestures: serve as a metaphor for the sound sensation. Performing direct gestures can assist to improve motor image and expression, such as circling for legato, and pointing for accented sound.

II. Indirect gestures: impose less effects on sound. They may serve as cues or transitions to the next movement.

2.2.1 Intuitive Movement as a Sign of Aliveness

It is remarkable that people with dementia, although refraining from engaging in physical activities most of the time, still possess the instinct of moving. In fact, the instinct to move occurs when we are unable to do anything as intended, as pointed out by phenomenological philosopher Ludwig Landgrebe (1902-1991). He explained, “reflection is primarily…a turning back toward what we can do…The ‘I move’ precedes that ‘I can’… The ability to move oneself…is the most elementary form of spontaneity” (cited in Sheets-Johnstone, 2011, p. 197 & 200). Dancer and philosopher Maxine Sheets-Johnstone (2011) also tells us that we need movement to get ourselves back to our fundamental form as humans, by turning ourselves toward the genesis in nature and discovering the kinetic structures of our original humanness. Landgrebe and Sheets-Johnstone’s notions resonate with that of Merleau-Ponty (1908-1961)
who reminded us that “a movement is learned…to allow oneself to respond to their call” (cited in Sheets-Johnstone, 2011, p. 217). The kinetic aliveness within the body is what drives us human beings, including those who have dementia, through the day.

What has the music triggered to motivate people with dementia to move? During the sensory stimulating process activated by the action of listening to music, our body allows the mind to use the received information to create input and generate data, which then produces movements. Hence, the responsive gestures and movements are generated as a non-verbal result of a holistic sensing-thinking-moving process (Clark, 2008; Bickhard, 2008; Sheets-Johnstone, 2011).

The synchronous combination of music and movement is a synthetic performance of the mind-body-environment embodiment (Bickhard, 2008). Such a specific form of embodiment is generated when a living body is able to respond to the musical environment through movements spontaneously. The sensory organs—eyes, ears, nose, mouth and skin—work together and build an ecological relationship between the mover and environment. Psychologist Bickard (2008) explains, “A minimal embodiment requirement…[is that] the system or organism be capable of full interaction, with outputs having causal influence on inputs with circular causal flow” (p. 38). The intuitive gestures and movements generated in response to the sound of music, thus, demonstrate the living capabilities of people with dementia as a sign of full representation of the cognition system.

2.2.2 Summary

In summary, the intuitive gestures and movements stimulated by favourite reminiscent music indicate the kinetic aliveness of the sensory-motor communicative system, most significantly in people who have advanced dementia. In such a kinetic process, the environmental information (music) received by sensory organs (ears) actively assists in generating stimuli to
create motor responses (movements). The spontaneous bodily reactions, hence, significantly reflect one person’s self-identity as a human being. Additionally, it also encompasses the holistic relationship of mind, body and the environment. Despite their critical cognitive decline, the dementia sufferers’ responsiveness to the music sparks a significant sign of aliveness in both mind and body.

The next section will explain how movement re-embodiment can benefit the people with dementia by promoting a sense of aliveness, memory and sensory stimulation, calmness, agency, and empathetic interaction with other people and the world. From a practical perspective, the implementation of the Intuitive Movement Re-embodiment method embodies the concept of Therapeutic Movement Relationship applied in the field of Dance/Movement Therapy. Finally, in the process of constructing the movement component, I employ the Effort concept of Laban Movement Analysis which provides specific therapeutic effects to the participants.
2.3 Movement Re-embodiment

2.3.1 Movement Re-embodiment as Re-awakening of Sense of Aliveness

The spontaneous re-embodiment of our own intuitive movements, re-awakens and re-enhances the interconnected process of the mind-body system by reproducing the associated kinaesthetic dynamics and somatic experience (Sheets-Johnstone, 2009; Homann, 2010). Dancer and philosopher Sheets-Johnstone (2009) describes the manifestation of the sense of aliveness through movements, even in the smallest and simplest forms—“Movement is not simply a sign of life, it is the preeminent sign of life” (p. 3). Just as a person’s awareness to their own movements, or kinaesthetic dynamics of involuntary movements, can stimulate feelings of aliveness; vice versa, the feeling of aliveness is a form of internalized habit that moves the human body. Human beings feel the living self through experiencing movements—this may give us a clue as to why people suffering from mental diseases often show the tendency of being unwilling to move.

As a result, people with dementia who mostly stay immobile, need to move with spontaneity to regain their sense of aliveness and to re-activate the connection of mind and body. Dance/Movement therapist Homann (2010) points out that the functioning of mind is actively processed and experienced while moving the body. The brain is a complex organ that monitors our behaviours and actions in interacting with other people and the environmental surroundings (Homann, 2010). It receives and analyses the information of what we have experienced, and produces our responses in return. While performing movements, the somatosensory information experienced by the body is processed in the brain, then translated into our experience as emotions. Movements, thus, become an avenue for expressing one’s inner emotions and feelings to others, especially when performed in an improvisational form.
Movement improvisation, commonly defined as an unrehearsed dance form, evolves as an open-ended creative process wherein mind and body perform in parallel in generating a series of movements with a dynamic flow (Sheets-Johnstone, 2011). Other definitions of movement improvisation—“prolonged present”, “a specious present” and “a live present”—vividly illustrate the inseparable relationship of thinking and doing in the process (cited in Sheets-Johnstone, 2011, p. 421). Within such a relationship, the mind gains thoughts from exploring the movements; vice versa, the kinetic qualities of the movements—effort, space, shape—directly reflect how the mind is thinking.

A simple daily life gesture, if developed into a full-body movement through a natural qualitative exploration in Effort, Weight and Shape, tells the story of mind in the moment and which connects to every single living or non-living object. As philosopher Merleau-Ponty suggested, “as soon as man uses movement to establish a living relation with his fellows, movement is…a manifestation, a revelation of intimate being and of the psychic link which unites us to the world and our fellow men” (cited in Sheets-Johnstone, 2011, p. 427). Whatever spontaneous movement we do right now is the combination of qualitative dynamics and kinetics that happens as a mode of physical thinking interacting with the world, which can be re-fostered again through the re-embodiment of intuitive movement.

2.3.2 Movement Re-embodiment as Activation of Implicit & Sensory Memory

The re-embodiment of intuitive movements can stimulate underlying implicit memory by re-activating the bodies of people with dementia with familiar sensory experience. Implicit memory in muscular, sensory and emotional forms can be stimulated by performing familiar or learned movements with spontaneity and freedom. When familiar movements are re-performed repetitively in a patterned fashion, the sensory-motor system actively engages older stimuli associated with a fragment of implicit memory (Topolinsky, 2012).
Memory facilitates the dynamic process of holding onto our identity and coordinating the identification process with new incoming experiences. Dance/Movement therapist Homann (2010) highlights that “memory keeps us oriented in the ongoing process of change that life always encompasses” (p. 86). Implicit or non-declarative memory, primarily stored in the amygdala, is associated with the experiences with strong emotional charge and impressions of events processed subconsciously. Explicit or declarative memory, situated in the hippocampus and related medial temporal lobe, is often linked to the capacity of speech and narrating autobiographical information (Harrison et al., 2007). “When a person encounters sensory constellations similar to the original experience, she or he may have preconscious emotional activation reminiscent of the original event without being aware of it” (cited in Homann, 2010, p. 87). A piece of implicit memory can be stimulated by subconsciously undergoing the identical sensory experience associated with a former event and re-experiencing the associated emotion.

People with Alzheimer’s disease still possess preserved implicit memories despite their significant explicit memory loss (Son et al., 2002; Harrison et al., 2007). The implicit system includes priming, motor skill learning, habit formation, and classical conditioning. In particular, priming and motor skill learning synergistically strengthen the activation of preserved implicit memory. Cognitive scientist Topolinsky (2012) suggests that the manifestations of implicit memory are the mere exposure effect—mostly caused by experiencing repeated stimuli or repetition priming (Son et al., 2002; Harrison et al., 2007). The processing of stimulus is trained and becomes more fluent through repetition. Specifically, the familiarity of such fluency tends to trigger the drives of older stimuli rather than new ones. Therefore, the motor responses are automatically activated by the associated sensory system when a repetitive stimulus is re-experienced multiple times. For instance, hearing a piece of favourite music can inspire a familiar dance move or habitual gesture that has been performed several times in the past.
Cognitive scientists Bergen & Feldman (2008) reveal that, apart from the genetic factors, the embodied experience—from maternal vocalization in the womb to culturally specific activities—shapes the conceptualized learning of individual humans. The mental access to concepts is produced on the basis of the internal creation of embodied experiences. For instance, specific body parts (such as feet) are activated by the associated motor and pre-motor cortex areas in response to the motor language referring to them (‘tap the feet’). Vice versa, the memory recollection engages mental stimulation with brain mechanisms that are responsible for perceiving the same perceptions or performing the same actions (tapping feet). Hence, the re-performing of the same actions (tapping feet) stimulates the recollection of sensory experience associated with a specific body part (feet), motor language (‘tap the feet’) and the former embodied experience (of tapping feet).

As such, implicit memory demonstrates habit—the effect of prior experience without a conscious recollection of that experience. The cortico-limbo-diencephalic circuit associated with memory is severely impaired in people with Alzheimer’s disease; however, the stimulus-response connections depending on the cortico-striatal circuit, mediated by habit, still remain active in them (Son et al., 2002). Through such connections, the feeling of familiarity can be developed unconsciously and effortlessly by activating the preserved implicit memory. Cognitive psychologists Kaplan & Kaplan define familiarity as “the relationship between an individual and something that individual has had considerable experience with… [which] is sufficient to advance to the development of an internal model of that something” (cited in Son et al., 2002, p. 264). As a result, exposure to familiar stimuli can spontaneously trigger appropriate functional activities, and effectively improve the functional ability in daily tasks of people with dementia.
Philosopher Richard Shusterman (1949-) argues that implicit muscle memory remains in the body as long as one stays alive, even while in a zombie-like state wherein the body has already lost consciousness (Friedman, 2002; Lee, 2011). He defines muscle memory “as a term commonly used in everyday discourse for the sort of embodied implicit memory that unconsciously helps to perform various motor tasks…as the result of… repeated prior experience” (cited in Lee, 2011, p. 200). Implicit memory such as personal identity, interpersonality, social contact, and relationship with environment continuously lies beneath our consciousness yet in our muscles as a form of imagination and somatic experience. By stimulating the underlying muscle memory, the body can regain conscious awareness and reduce the zombie-like state.

In the field of Dance/Movement Therapy (DMT), it is indicated that a person’s inner world could be detected by analysing the somatic expressions conveyed through their intuitive movements, which may evoke prior human experiences in the form of somatic memory. DMT therapist Wyman-McGinty (1998) uses the example of Authentic Movement method (a natural form of movement practice invented by Mary Starks-Whitehouse in the 1950s) to explain: “When the mover’s attention is focused on the bodily-felt level of experiencing, there is a quality of allowing oneself to be moved from within…[which is] a kind of kinaesthetic free association” (p. 242). Psychoanalyst Bollas (1987) remarks that intuitive movements, if
performed with a relaxed mind, are effective in recovering the somatic memory (Wyman-McGinty, 1998).

Finally, emotional memory, another form of implicit memory, can also be stimulated by activating amygdala with added subjective effect to experiences and memories (Son et al., 2002). When the amygdala is activated, experiences or stimuli are coded with a positive or negative tone depending on a specific situation. Notably, people with dementia tend to experience positive emotions such as calmness, control, or comfort when they perceive cues with a feeling of familiarity.

2.3.3 Movement Re-embodiment as a Mood Enhancer

The physical inactivity of people with dementia has significantly contributed to their depressive behaviours, low self-esteem and confidence, impaired social and interpersonal skills, social withdrawal and difficult relationships with others—which can be improved by performing spontaneous movement. While moving spontaneously, the focus in qualitative dynamics allows us to concentrate on our own sensory experiences and manage the levels of arousal through self-regulation of our own bodies—the brain is capable of balancing activation and rest via regulating the biodynamics of the body (Homann, 2010). With a relaxed mind and body, a person’s thoughts and feelings are activated with creativity; the state of open receptivity allows new information to enter and be integrated to produce positive emotions. Hence, movement helps to create a sense of positivity in people with dementia, and consequently contributes to a safe, held and relaxed body.

Elderly people who are already taking antidepressant medication but have not responded, can become visibly enlivened and show signs of enjoyment by taking part in physical activities (Craft, 2012). The neurotransmission of serotonin, norepinephrine and dopamine in the brain is increased through moving the body. Besides, neuron growth in the
hippocampus, the brain area damaged by chronic effects of depression, is significantly increased while moving. These positive physiological effects mimic those of the antidepressant medications—possibly being more affordable and sustainable.

From the perspective of neurobiology, emotions and feelings are considered a physiologically based interpretation of somatic experience (Homann, 2010). Homann (2010) explains, “emotions involve the mind/body’s processing of its responses to the environment, to people and situations…yet the impact…is often implicit and not consciously registered in the moment” (p. 84). The neurological processing related to feelings is, in fact, found to operate beneath the level of consciousness—as depicted in a poetic description presented by Pert (1997), a renowned neuroscientist:

Every second a massive information exchange is occurring in your body.
Imagine each of these messenger systems possessing a specific tone,
humming a signature tune, rising and falling, waxing and waning, binding and unbinding, and if we could hear this body music with our ears, then the sum of these sounds would be the music that we call the emotions.

(cited in Homann, 2010, p. 84)

The somatosensory information experienced by the body is processed in the brain then translated into the experience of emotions. As a result, spontaneous movement exploration and re-embodiment performed in a carefree environment, can be a repetitive experience of becoming conscious of one’s emotion. Moreover, a person responds more effectively with enhanced creativity when such an unconfined emotion is repeatedly re-evoked (Homann, 2010). This neurological phenomenon reflects the similar enjoyment found in child’s play that often produces laughter, happiness and joy “with its connotations of spontaneity, freedom,
whimsicality, purposelessness, unpredictability, and irrationality” (Hyland cited in Sheets-Johnstone, 2008b, p. 257).

2.3.4 Movement Re-embodiment as Agency, Self-efficacy & Empowerment

With the auditory aid provided by reminiscent music, people with dementia are able to exercise the re-embodiment of their own intuitive movements, which creates an active catalyst to reinforce the process of agency and empowerment. Being able to move freely with self-awareness, hence, empowers them with a sense of autonomy and independence, which additionally fosters familiarity and consistency that can prolong their functional state (Mendez & Cummings, 2003; Bann et al., 2010). Also, the activation of implicit memory stimulated by re-embodying the intuitive movements, informs them of their self-states through the integration of mind-body-environment experience (Wyman-McGinty, 1998; Bergen & Feldman, 2008; Homann, 2010; Lee, 2011; Topolinsky, 2012).

Philosopher Clark (2008) points out that the sense of embodiment accompanied with the conscious experience, can have an impact on our self-image and attitudes. To explain this from the perspective of sociology, human beings have the tendency “to absorb norms and practices saturated with cultural meanings and respond to those meanings in various ways” (cited in Lukianova & Fell, 2015, p. 614). A person’s identification is delivered through a complex communicative process within a holistic mind-body-environment relationship, and becomes an interpreted meaning created by humans (Lukianova & Fell, 2015). Psychologist Shapiro (2004) observes that “the procedures by which human beings perceive depth…are contingent on a fact about human bodies” (cited in Clark, 2008, p. 49). In other words, the sense of agency and self-efficacy can be generated when a person is capable of understanding and responding to the situated context via movement (Sheets-Johnstone, 2009).
Moving bodies, *animate forms*, attain their unique identities through moving (Sheets-Johnstone, 2009). The *synergies of meaningful movements* transport effective communication and build close relationships between bodies of the same and different species in generating a basic form of agency; vice versa, the generated agency is capable of creating the synergies of meaningful movements. Sheets-Johnstone (2009) suggests, “[the] awareness of corporeal powers (agency)…arises from [daily] tactile-kinaesthetic activity…[and] is the result either of moving or of already having moved” (p. 5). Through experiencing the kinetic dynamics in movements and interacting with others, *I can* is empowered.

If empowered with a sense of agency and self-efficacy, people with dementia can improve their capability in recognizing their own emotional conditions and providing self-care with increased confidence (Bann et al., 2010). Furthermore, an empathetic relationship between them and caregivers can be built, whereby individuals with dementia are regarded as equal partners in problem solving and treatment. Such a relationship not only nurtures a friendly and comfortable environment for them, but also promotes a re-identification process where they re-learn about their situation and those around them.

2.3.5 *Movement Re-embodiment as an Interaction Enhancer*

In a group setting, the interaction of people with dementia with each other can be fostered through the ‘in the moment’ manner of reciprocal movement re-embodiment. A kinaesthetic system of communicative transaction is generated through the activity of embodying–re-embodying, and mirroring–re-mirroring the movements. In the process, they are given an opportunity to profoundly experience themselves, others and the environment through constantly connecting and disconnecting with each other, similar to the practice of dance improvisation (Bench, 2016). Dance professor Bench (2016) remarks that such an improvisational practice demonstrates a form of democracy. He says, “Coexistence is the social
choreography that enables and constrains our being...[and] the irreducible plurality that offers with-ness as well as withdrawal, compassion as well as cruelty” (p. 88). During the activity of reciprocal movement re-embodiment, a sense of socio-ecology is forged through democratic contributing and accepting motions among the participants. Diversity-similarities, agreement-disagreement, contrast-coherence are blended seamlessly in the form of space, time and energy; judgement and bias are accepted with mutual understanding and sensitivity.

From the perspective of sociology, the communication process between two people engages mutual understanding with the involvement of interactive creation of messages, expression, exchange of ideas and feelings (Lukianova & Fell, 2015). To be able to interact, embodies the meaning of living as a human being (Bickhard, 2008). Psychologist Bickhard (2008) explains, “[to be able to interact] is required for complex agents to function in the world, and it is representational because it manifests truth value” (p. 37). His opinion resonates with that of philosopher Gallagher (2008), who asserts that bodily interactions should be regarded as “actions as meaningful in the context of the physical and intersubjective environment” (p. 445). While mirroring someone’s movements, we receive a substantial amount of information through direct perception of another person’s body, which contains feelings and intentions in the posture, movements, facial expressions, gestures, vocal intonations and actions. In return, we respond in a way that engages our perception of them activated by the motor and emotional systems.

The presence of mirror neurons (MN) is closely linked with social conscience—feelings of disgust, shame guilt, pride and sexual desire. The insula (also known as the central lobe or the Island of Reil), a triangular region within the cerebral cortex, is associated with visceral functions and integration of autonomic information (Berrol, 2006). The limbic system, which regulates the autonomic nervous and endocrine systems, consists of amygdala, hippocampus, hypothalamus, portions of the thalamus, the fornix and mamillary bodies. It is capable of
integrating thoughts and emotions as motor behaviour. Particularly, the amygdala is associated with fear, pleasure and aggression. When the body engages in a mirroring activity, both the amygdala and insula of the observer are activated; the inter-neuronal network of prefrontal cortex and the limbic system serves as a vital conduit for the mirroring-empathy processing.

The mirror neuron system is activated when people engage in a face-to-face interaction through re-embodying each other’s movements through atonement, rhythmic synchrony and novelty. Such a mirroring activity helps us to directly understand other peoples’ actions and behaviours (Berrol, 2006; Gallagher, 2008; Homann, 2010). Psychologist Hart (2008) explains, “Brainstem structures, the insula, and the orbitofrontal cortex in the right hemisphere integrate body sensations, emotions, and mental images. This forms the basis of entering into a field of resonance with another person’s internal states and developing an understanding of the other’s mind” (cited in Homann, 2010, p. 90). Pioneer Dance/Movement therapist Schoop (1974) recalls, “On the streets of Zurich I followed strangers, imitating their gait and posture, and imagined, by taking in their manner of movement, that I was able to feel their state of mind” (cited in Berrol, 2006, p. 309). The mirroring action in a movement activity actively facilitates self-awareness through being observed and accepted by another with one’s full range of emotion. If practiced in a group, it can further reduce emotional isolation and promote a sense of empathy among the movers.

2.3.6 Movement Re-embodiment as an Empathy Stimulator

Reciprocal movement re-embodying nurtures the capacity for empathy, attachment and interrelationship. To sense and to respond to each other within an effective communication is “an essential part of being human” (cited in Homann, 2010, p. 89). Psychiatrist Iacoboni (2008) says, “I think one of the primary goals of imitation may actually be the facilitation of an embodied ‘intimacy’ between the self and others during social relations” (cited in Homann,
The exercise of observing and replicating another person’s movements, stimulates the inter-neuronal activity in the mirror neuron system and produces feelings of empathy, love and human interaction (Sheets-Johnstone, 2008b).

In movements, we gain perceptions and feelings distinctly from the double spatial sense of movements. The qualitative dynamics, specifically spatial dynamics, are experienced in a three-dimensional kinetic context—a form of intersubjectivity is manifested. Such an inner-outer relationship can be described as ‘the touching and the touched’ (cited in Sheets-Johnstone, 2008b, p. 196). Likewise, during a mirroring activity, the exchange of perceptions and feelings are obtained alongside the intersecting dynamics between the movers. Psychologist Stern (2000) explains, “[In a] shared framework of meaning and means of communication such as gesture, posture or facial expression…the interpersonal behaviour has moved…from overt actions and responses to the internal subjective states that lie behind the overt behaviours” (cited in Berrol, 2006, p. 308). As a result, a cognitive relationship of kinetics and affection through movement generates a sense of empathy with emotional resonance.

In the case of the research practicum, the sense of empathy is the key to creating relational depth within a therapeutic relationship (Von Humboldt & Leal, 2017). It involves interactive, bi-directional and mutual responses, by which the facilitator can reach out to the participant’s not-yet-verbalised experiencing, or the ‘felt sense’. Psychologist Rogers (1980) says, “[empathy] means entering the private perceptual world of the other…It involves being sensitive, moment by moment, to the changing felt meanings which flow in this person…[the] meanings of which he or she is scarcely aware” (cited in Von Humboldt & Leal, 2015, p. 142). Enhanced with a sense of empathy, the nature of the IMR practicum becomes focus-oriented and person-centered; it provides the facilitator with open and non-judgmental considerations, which is directly experienced by the participants wordlessly. As a consequence, the participant is empowered to be an active and meaning-oriented agent with a deepened sense of personhood.
2.3.7 Movement Re-embodiment & Therapeutic Movement Relationship

Intuitive Movement Re-embodiment incorporates the key concept of Therapeutic Movement Relationship (TMR) through its utilization of creativity and intuition (Young, 2017). Introduced by Marian Chace (1896-1970), the founder of Dance/Movement Therapy (DMT), TMR has been considered pivotal to the development of the enactive, embodied and intersubjective framework of the field. Basically, its concept is profoundly rooted in humanity and human relationships that, as Chace contended, decide the degree of our emotional well-being. “The TMR is a shared presence of body, mind and spirit between the Dance/Movement therapist and client where healing occurs within the safe containment of a creative collaboration, and results in a resonance” (cited in Young, 2017, p. 104). The development of brain and integration of mind-body can be forged in an interpersonal connection built through the creative sharing of movements to the satisfaction of this basic human need. Dance therapist Imus (2014) shares her experience:

[T]his reciprocal relationship in that our bodies were responding to one another…My adaptability was my creativity and my creativity then fostered my patient’s creativity and so then together…we were implicitly creating something together that the work of art we ended up creating has some weight or knowledge or value to it.

(cited in Young, 2017, p. 107)

In the context of movement-based therapy, creativity allows the facilitator to raise more awareness for the participants of their own movements, as dance therapist Wager (2014) describes—“[to] further expand it, make it smaller, just explore the many facets of that movement” (cited in Young, 2017, p. 107). The unlimited use of creativity in movement...
provides more textural and structural dimensions in practice, which enables the facilitator and participants to bond through creating an intersubjective and shared space.

*Intuition*, on the other hand, promotes a sense of resonant understanding in this shared space by directing the facilitator’s attention to instantly respond to what is experienced through sensations. The fundamental of TMR is, therefore, a connection between the participant and facilitator forged through an awareness of the interpersonal or psychological contact with each other. Besides, it fosters a holistic alliance amongst the participants, which is explained by psychotherapists Gelso & Carter (1985) as “the feelings and attitudes that the counselling participants have toward one another, and the manner in which these are expressed” (cited in Young, 2017, p. 95). In summary, there are four necessary conditions required to effectively build the TMR: incongruence of the participant between actual and perceived self; genuineness of the facilitator; unconditional positive regard and empathic understanding of the facilitator towards the participant; and the participant’s perception of the facilitator (Young, 2017).

2.3.8 *Laban Movement Analysis*

In the process of constructing the dance routines, I refer to the *Effort Qualities* concept of the *Laban Movement Analysis* (LMA) theory created by Rudolf von Laban (1879-1958), a renowned dance educator and choreographer. LMA is a systematic approach for observing, describing, and analysing changes in human movement (Talbot, 2012; Young, 2012; Payne, 2017). In the field of psychotherapy, it is often utilised as a tool to assess the patients’ movement profiles. In particular, Dance/Movement therapists use it to diagnose the patients’ personality, mental disorders, irritable bowel disease, and eating disorders. In clinical practice, the implementation of LMA can improve patients’ physical and psychological conditions such as balance and co-ordination, strength and flexibility, mind-body connection, cognitive processing skills, sequencing, self-expression, relationship with others and use of
developmental patterns. In the framework of LMA, there are four basic components that provide a comprehensive vocabulary and analytic guideline:

<table>
<thead>
<tr>
<th>Components</th>
<th>Meaning and Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>The centre of body, which describes the action of the torso and limbs.</td>
</tr>
<tr>
<td>Effort</td>
<td>How the body concentrates its exertion as the body changes in its quality of movement through Flow, Weight, Time and Space (Effort Qualities).</td>
</tr>
<tr>
<td>Space</td>
<td>The environment in which we move. While moving, we are supported by the kinesphere surrounding us—‘wherever you go, there you are’.</td>
</tr>
<tr>
<td>Shape</td>
<td>Creating context and meaning. Shape organizes the Body, contains Effort, and gives form to Shape; it is the baseline for movement, creates our relationship and interacting with the environment.</td>
</tr>
</tbody>
</table>

TABLE 2: Components of Laban Movement Analysis (Talbot, 2012, p. 46)

In particular, the analysis of Effort Qualities can reflect a person’s quality of movement and even their personalities (Young, 2012). In reality, the single Effort Elements—flow, space, weight, time are rarely utilized individually because most movements are a complex combination of Effort Qualities. According to Laban, the emphasis on a sole aspect of Effort could be considered ‘harmful’ since it limits the mover’s learning process and inhibits a well-balanced experience. Indeed, a variety of full spectrum of Effort Qualities can ensure the movers engage in a broad range of intellectual and physical activities, which provide them satisfaction in self-development and relationships with others.

<table>
<thead>
<tr>
<th>Effort Elements</th>
<th>Functions</th>
<th>Indulging Quality *extreme qualities if performed exaggeratingly</th>
<th>Fighting Quality *extreme qualities if performed exaggeratingly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (degree of muscle tension)</td>
<td>Underlies all of human movement and supports the progression of an action.</td>
<td>Freeing: outward streaming of energy from the centre of the body and extending through the limbs. *Extreme of abandonment, uncontrolled outpouring—‘flightiness’.</td>
<td>Binding: inward streaming of energy from the outer ends of the limbs towards the body’s centre. *Extreme of rigidity, inhibited actions, emotional expression</td>
</tr>
</tbody>
</table>
Furthermore, Laban asserted that humans mostly move in *Effort State*, a combination of two Effort Elements. It reflects our mood, informs us of our interpersonal styles, and flavours how we function and express ourselves.

<table>
<thead>
<tr>
<th>Effort State</th>
<th>Effort Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awake</td>
<td>Space, Time</td>
</tr>
<tr>
<td>Dream</td>
<td>Flow, Weight</td>
</tr>
<tr>
<td>Mobile</td>
<td>Flow, Time</td>
</tr>
<tr>
<td>Stable</td>
<td>Space, Weight</td>
</tr>
<tr>
<td>Rhythm</td>
<td>Weight, Time</td>
</tr>
<tr>
<td>Remote</td>
<td>Flow, Space</td>
</tr>
</tbody>
</table>

TABLE 4: Combination of Effort Elements in Effort States (from Young, 2012, p. 147)

Through understanding the Effort Elements and how they form the Effort States, we can produce a more balanced use of movements and movement combinations to support
functional and expressive communications (Young, 2012). When creating and performing movements in different Effort States, a person’s belief or imagination is triggered by the brain’s emotion that detects a simulation mechanism. This kind of embodied simulation is a low-level of mental simulation through “unmediated—below the threshold of consciousness—processes underlying [the] mirror-neuronal activity” (Gallese & Lakoff cited in Payne, 2017, p. 168). Hence, in the research, the creative process of dance making engages a variety of combinations of Effort Qualities to create specific embodied simulations, which motivate the dementia-suffering participants to move spontaneously.

In psychotherapy, such an intuitive attunement, or ‘tuning into’ others, allows us to predict and interpret the clients’ actions by evaluating their intention and motive, thoughts, feelings and desires in a process associated with the generation of empathy. Defined by Laban as Human Effort, such a human-centered approach serves “as effort capable of resisting the influence of inherited or acquired capacities”, and provides us with the ability “to control negative habits and to develop qualities and inclinations creditable to man, despite adverse influences” (Laban cited in Young, 2012, p. 148). In practice, the implementation of Human Effort often begins with experimentation through play, wherein “the body-mind becomes trained to react promptly and with improved effort configurations to all the demands of differing situations, until the adoption of the best [most efficient] becomes automatic” (Laban cited in Young, 2012, p. 148). As a form of embodied simulation, such an experimental approach makes sense of the movers’ behaviours and beliefs when their mental state is simulated internally in the cognitive system (Payne, 2017).

2.3.9 Summary

In summary, by emphasising the reminiscent elements of familiar music and intuitive movements, the implementation of the Intuitive Movement Re-embodiment (IMR) method can:
effectively enhance a sense of aliveness; stimulate implicit memory and sensory experience; regulate mood; empower agency and self-efficacy in people with dementia; and improve their interaction with others. Through fostering a sense of familiarity, it can maintain and even enhance the dementia-suffering participants’ functional capability in performing daily tasks. Additionally, the group activity consisting of mirroring and re-embodying one’s own and others’ movements, enables the intersubjective exchange of perceptions, feelings and empathy among the participants. During the creative process involving listening to and singing familiar music, and re-performing their own intuitive movements, the participants spontaneously re-learn and understand about their new identities, as well as the surrounding people and environment with greater confidence and joyfulness. Ultimately, the practice of IMR embodies the key concept of Therapeutic Movement Relationship (TMR), a pivotal figure in the field of Dance/Movement Therapy (DMT). The application of creativity and intuition generates an intimate connection between the dance facilitator and the participants in which a sense of empathy is deeply rooted. During the dance-making process, the Effort Qualities concept of Laban Movement Analysis (LMA) is employed to create embodied simulations in order to motivate the participants to move spontaneously.

In the next chapter, I will explain how I construct and implement the IMR program for the senior participants from the Gibson Day Unit of Dunedin Public Hospital and Enliven St Andrews Care Home, followed by the description of data collection and analysis.
As will be illustrated in this chapter, the methodology of this ethnographic research demonstrates a marriage of creative, quantitative and qualitative methods. As reflected in the multiple facets of the literature review—neuroscience, psychological medicine, music, dance, sociology and philosophy—the ecological paradigm underpinning this research demonstrates an interrelationship of individuals and the situated environment based on a broad and diverse range of epistemologies. *Ecology* (originally ‘Oikos’ in Greek) means ‘home’ or ‘a place to live’. Initially applied in the biological field, it is commonly related to the interrelations between organisms and their environments. The context of this research situates it within a humanity-based ecological framework, which encompasses an interdisciplinary methodology inclusive of arts, social and health sciences, with the aim of promoting a holistic—mind, body and social—wellness of people within the community.

Firstly, I describe the creative components of the IMR program including live piano playing, gesture and movement collection, and the construction of dance routines. Secondly, the creative practice was exercised in the setting of community dance on the basis of a socio-ecological philosophy. Alongside the creative practice, the data was collected through a mix of quantitative and qualitative methods: the WHO-5 questionnaire; Participant-observation and Informal Interviews. The quantitative and qualitative data were analysed by applying positivistic and interpretive approaches respectively. With an emphasis on qualitative
interpretation, a convergent analysis was employed to evaluate the outcomes of the music-dance activity. Finally, a summary is presented (Brewer, 2000; Kuppers, 2000; Eddy, 2002; Whatley, 2007; LeCompte & Schensul, 2010; Cheesman, 2011; Nakajima, 2011; Craft, 2012; Li, 2012; LeCompte & Schensul, 2013; Curry & Nunez-Smith, 2015; Foster, 2015; Teharne & Riggs, 2015; Vaughan, 2015; Bench, 2016; Barry, 2017; Fitzgerald, 2017; Michalos, 2017; Pelto, 2017).
3.1 Intuitive Movement Re-embodiment– ‘IMR’

This section explains the process of how the Intuitive Movement Re-embodiment (IMR) routines were constructed, followed by the details of the practical session.

3.1.1 Live Piano Playing of Reminiscent Music

The study participants were senior New Zealanders (25 Europeans and 1 Māori) aged early 60s to mid-90s (see Research Participants p. 58). In catering to their cultural background, songs and tunes from the 1920’s to 1970’s were selected: English, Irish and Scottish folk songs such as *Daisy Daisy, Auld Lang Syne, Waltzing Matilda* and *My Bonnie*; church songs such as *What a Friend We have in Jesus*; popular tunes from the films *Mary Poppins* (1964) and *The Sound of Music* (1965), and the British band *The Beatles* (1960-1970).

The music style can significantly affect the degree of the participants’ responses. In the piano playing session, the tempo was mostly kept in moderation in order to accommodate their learning and singing capabilities—and could be adjusted at any time within an appropriate range of flexibility (Blum, 2013). For instance, I played more slowly if the participants found the playing too fast to sing along with; or I might also speed up. The decision regarding the tempo was made by meeting the average preference of the majority of participants in the group.

Regular repetition provided the participants multiple opportunities to recall and sing the lyrics (Van de Winckel et al., 2004; De Dreu et al., 2012; Blum, 2013; Biggar, 2017). In the situation when a specific tune successfully attracted their interest in singing more, I repeated it twice or more if desired, with a consistent tempo but in distinctive styles of rhythm. For example, *Cruising Down the River* was played in waltz, triplet and march rhythms respectively for each repetition. A broad variety of rhythm not only enriched the tunes with colourful flavours, but also motivated the participants to sing and move more. Such an approach significantly enhanced their sense of familiarity towards the music repertoire in preparation for
the following dance session wherein the re-arranged version was played through an electronic device (a portable speaker in the case of this study). In the dance session, the sense of familiarity could effectively motivate the participants to move spontaneously with similar musical cues to those experienced in the singing session.

3.1.2 Gesture & Movement Collection

While playing the piano, I carefully observed the non-verbal responses of the participants. Throughout the session, they had the freedom to do whichever activity they liked: singing, humming, clapping, tapping and even dancing. These intuitive gestures and movements were recorded as raw material for the later dance constructing process.

3.1.3 IMR Dance Construction

In this study, a series of simple and short routines were created. Gestures and movements that could be adapted and performed by the majority of participants in the group were selected and constructed by referring to the Effort Qualities of the Laban Movement Analysis theory (see Laban Movement Analysis p. 40). As for the musical component, the same music repertoire was re-arranged with a variable combination of tempos, rhythms and dynamics according to the Rhythmics concept of the Dalcroze Eurhythmics theory (see Dalcroze Eurhythmics p. 19). Ultimately, the intersection of both concepts, time-energy-space, formed the creative component of the dance routines.

Below is the list of examples of gestures and recommended movement developments, constructed and informed by the Effort Qualities of Laban Movement Analysis. It briefly demonstrates how the collected movements can be modified and adapted to the physical capabilities of senior participants.
<table>
<thead>
<tr>
<th>Body parts</th>
<th>Gesture examples</th>
<th>Recommended Developments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head/Neck</td>
<td>Nodding</td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhythmic change: single staccato, double staccato</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: strong &amp; soft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: right &amp; left, side-to-side</td>
</tr>
<tr>
<td></td>
<td>Turning</td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: strong &amp; soft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: right &amp; left, small &amp; big</td>
</tr>
<tr>
<td>Shoulder</td>
<td>Lifting and dropping</td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhythmic change: single staccato, double staccato</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: light &amp; heavy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: higher &amp; lower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Co-ordination: single side alternately, both shoulders together</td>
</tr>
<tr>
<td>Rotation</td>
<td></td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhythmic change: staccato, legato</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: strong &amp; soft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: wide &amp; narrow, forward &amp; back</td>
</tr>
<tr>
<td>Torso</td>
<td>Twisting or Tilting</td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: smooth &amp; robotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: right &amp; left, side-to-side</td>
</tr>
<tr>
<td>Arms, hands or fingers</td>
<td>Waving</td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhythmic change: smooth &amp; jerky</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: light &amp; heavy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: right &amp; left, high &amp; low, circling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Co-ordination: single limb alternately, both limbs together</td>
</tr>
<tr>
<td>Drawing line</td>
<td></td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhythmic change: smooth, jerky</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: light, heavy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: right &amp; left, high &amp; low, circling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Co-ordination: single limb alternately, both limbs together</td>
</tr>
<tr>
<td>Clapping</td>
<td></td>
<td>Tempo: fast, slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rhythmic change: single staccato, double staccato</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy: soft &amp; heavy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Space: right &amp; left, high &amp; low, front &amp; back</td>
</tr>
<tr>
<td>Legs</td>
<td>Alternate</td>
<td>Tempo: fast, slow</td>
</tr>
</tbody>
</table>
crossing legs  |  Rhythmic change: smooth & jerky  
|  Space: right & left  
Lifting and dropping  |  Tempo: fast, slow  
|  Rhythmic change: smooth & jerky  
|  Energy: light & heavy  
|  Space: higher & lower  
|  Co-ordination: single limb alternately, both limbs together  
Feet  |  Tapping  
|  Tempo: fast, slow  
|  Rhythmic change: single staccato, double staccato  
|  Energy: light, heavy  
|  Space: sideway, front & back  
|  Co-ordination: single foot alternately, both limbs together  

| TABLE 5: Examples of Gestures & Recommended Movements |

Also, I have also referred to the *Frontal Assessment Battery* (FAB), a clinical-based assessment scale to evaluate frontal lobe function easily and quickly (Oshima et al., 2012; Hurtado-Pomares et al., 2017). FAB is an executive approach catered to the cognitive dysfunctions caused by neurodegenerative disease, most commonly utilized to assist in discriminating between Alzheimer’s disease and dementia syndromes with a frontal dysexecutive phenotype. Consisting of six different tests, it was designed to evaluate the dysfunction in the frontal lobes including the inability to establish abstract relationships among objects, poor insight, and judgment to handle new situations; reduced verbal fluency; alterations of skills related to time organization, and maintenance and execution of successive actions. In the study, I have referred to the following concepts to supplement the construction of the IMR dance routines: item 1–conceptualization associated with dorsolateral frontal areas; item 2–mental flexibility related to prefrontal dorsolateral cortex and medial frontotemporal cortex; item 3–motor planning linked with right prefrontal dorsolateral cortex and basal ganglia; item 4 to 6–inhibition and interference control connected with orbitomedial areas. These selected concepts have furnished the IMR method with clinical elements, although it is not my ultimate intent to target specific neurodegenerative deficiencies caused by dementia.
3.1.4 IMR Dance Routines

I. Movement Patterning

Referring to the FAB item 3 *programming*, this exercise is a combination of two respective movements structured in the A-B-A-B format. After the movement demonstration, the facilitator practices with the participants twice before letting them perform independently.

Music:

- Preferably 4/4 time signature
- Moderate and consistent tempo
- Significant distinctive patterns of A and B
- Significant contrasting rhythms of A and B (such as melodic vs march, waltz vs march)
- Significant contrasting dynamics of A and B (softer vs stronger)
- Recommended songs: *You are My Sunshine, Yellow Submarine, The Road to the Isles, Side by Side, Hey Jude*

II. Synchronize-with-the-Music (Pitch/Tempo & Dynamics)

This routine is informed by the FAB item 2 *mental flexibility*. The participants are taught a gesture or movement that can be re-performed with synchronous alternatives. Independent session is attempted after the movement demonstration and two practices with music.

<table>
<thead>
<tr>
<th>Musical Cues</th>
<th>Synchronous Movements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch: higher</td>
<td>Movements in higher level</td>
</tr>
<tr>
<td>(an octave higher than middle C)</td>
<td></td>
</tr>
<tr>
<td>Pitch: lower</td>
<td>Movements in lower level</td>
</tr>
<tr>
<td>(an octave lower than middle C)</td>
<td></td>
</tr>
<tr>
<td>Tempo &amp; dynamics: faster &amp; softer</td>
<td>Relatively faster and lighter movements in smaller range</td>
</tr>
<tr>
<td>Tempo &amp; dynamics: slower &amp; stronger</td>
<td>Relatively slower and heavier movements in bigger range</td>
</tr>
</tbody>
</table>

*TABLE 6: Variations of Pitch & Tempo and Synchronous Movements*

Music:

- ¾ or 4/4 time signature
• Variations of tempo and dynamics are significantly emphasised.
• Recommended songs: *Edelweiss, Amazing Grace, Cruising Down the River, Waltzing Matilda*

III. Move-and-Pause

This routine is informed by the FAB item 5 *inhibitory control*. The participants perform a particular movement repetitively such as marching, and pause as indicated by the musical cue ‘rest’. Independent session is attempted after the movement demonstration and two practices with music.

<table>
<thead>
<tr>
<th>Musical Cues</th>
<th>Marching Variations</th>
<th>Developments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent tempo</td>
<td>Consistent moving</td>
<td>On the spot; travelling in the circle (clockwise/anti-clockwise); in random directions.</td>
</tr>
<tr>
<td>Rest</td>
<td>Pause</td>
<td>With any self’s select pose.</td>
</tr>
<tr>
<td>Rest with the last note softly</td>
<td>Gradual pause</td>
<td>With soft pose.</td>
</tr>
<tr>
<td>played with legato</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest with the last note strongly</td>
<td>Instant pause</td>
<td>With strong pose.</td>
</tr>
<tr>
<td>played with accent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 7: Variations of Move-and-Pause

Music:

• 4/4 time signature in march rhythm
• Accentuated on the 1st count
• Recommended songs: *The Camptown Faces, Yellow Submarine, Loch Lomond, John Brown’s Body, Red River Valley, Supercalifragilisticexpialidocious*

Note:

• Participants may ‘march’ in the chair and clap if they encounter physical difficulties in standing and walking.
• Percussion instruments and props such as pom-poms can be incorporated.
IV. Contrasting Movement

This routine is informed by the FAB item 4 sensitivity to interference. When the music pauses, the participants perform the contrasting movement that is either opposite or reverse to the demonstrated one. Independent session is attempted after two practices.

Music:
- Any time signature and rhythm
- Pause the music for 4 counts every two bars
- Recommended songs: Chorus from the tunes Yellow Submarine, Waltzing Matilda, Let It Be

V. Themed Improvisation

Referring to the FAB item 1 conceptualization and item 6 environmental autotomy, this exercise is a free improvisation structured around a given theme. During the ‘story telling’ preparatory session, the facilitator may pick up any instant movement of the participants any time to motivate the whole group to perform mirroring more. The participants may explore the movements as far as their physical conditions allow. Independent session is attempted after the ‘story telling’ and one practice with music.

Music:
- Any time signature
- Variations of tempo
- Variations of rhythmic
- Variations of dynamics

Note:
- Preferably themes associated with the participants’ lived experiences such as ‘baking cake’, ‘laundry washing’, ‘basketball dance’, ‘bubbles & rocks’ and ‘tress & wind’.
- Expressive props such as scarf can be incorporated.
3.1.5 Research Practicum

The IMR session was divided into two parts:

I. Piano playing and singing (5 to 10 minutes)
This session warmed the participants up and built a rapport between the facilitator and participants. Clapping was incorporated to foster their sense of musicality. The participants’ non-verbal body language was recorded and utilized as the raw material for the dance session.

II. Dancing (30 to 40 minutes)
This session comprised six individual routines mentioned in the previous section. The participants were seated most of the time; however, travelling movements were occasionally arranged if their physical conditions allowed.

Ten weekly practical sessions offered in the early afternoon (11 to 12 o’clock) were completed to collect the data. Each week, I employed the same music repertoire, movement concepts and improvisation themes for three respective study groups (see Research Participants p. 58). Alternate changes in content such as music, movement and improvisation theme were attempted every fortnight.
3.2 Dance Facilitation

This section discusses dance facilitation in a disability environment. Discourse related to community dance for disabled dancers has developed since the early 21st century when theatrical dance artists extended participation in movement workshops to people who were not professionally trained. Practical challenges such as how to accommodate the disabled dancers’ physical and mental abilities, and how to make the environment accessible to them, have been discussed widely by a number of dance educators and scholars (Kuppers, 2000; Eddy, 2002; Whatley, 2007; Cheesman, 2011; Craft, 2012; Li, 2012; Bench, 2016; Barry, 2017; Fitzgerald, 2017).

3.2.1 Accessible Culture for Seniors with Dementia

A community…a common giving of people who share the cost of being vulnerable.

Cicely Saunders (cited in Jennings, 2014, p. 1)

An accessible culture including adaptable techniques, workspaces and training facilities, nurtures and promotes a friendly socio-cultural environment for differently disabled people (Kuppers, 2000; Zeindlinger, 2014; Nakajima, 2011). Disability dance specialist Petra Kuppers (2000) comments that such a culture promotes “[a] wider educational work on the level of dance literacy; our ability to read dance and appreciate its manipulation of bodies, spaces and times” (p. 119). In this study, the dance movements were specifically designed within the range of the participants’ physical and learning capabilities; the routines were modified to accommodate the majority of participants who had to stay seated most of the time; the musical repertoire was decided based on their cultural background; verbal forms of communication and interaction catered to their capacity to comprehend and understand instructions. During the session, the participants were granted the freedom to learn the dance steps at their own pace.
and decide how much they would engage in individual routine. Dementia sociologist Kontos (2012) adds, “recognition of the larger human dimension of individuals with Alzheimer’s disease has important implications for improving their quality of life and quality of care” (p. 12). Between the dance exercises, allowing the participants to express their will and feeling freely in a constructive manner, can foster an empathetic relationship between the dance facilitator and the participants, and consequently enhance the therapeutic effects (Young, 2017).

Regarding the dance environment, dementia researchers Mendez & Cummings (2008) point out that elderly people with dementia should be provided with a safe environment. Fixed bars around the wall, cushioned floor, adequate space, chairs with handles and convenient access to the bathroom were amongst the essential facilities that allowed the senior participants to move freely in a protective and manageable context. Apart from that, at the care home, physical assistance such as leading the participants to the activity area as a safety precaution was provided constantly.

In the study, the redefined accessible dance culture enabled the participants to enjoy the activity comfortably. The employed facilitation style inclusively encouraged individual expression and “allowed different voices, bodies and experiences to emerge” among the participants in a group (Kuppers cited in Nakajima, 2011, p. 101). The socio-cultural definitions of ‘disabled’ dance and ‘disabled’ dancing body, contest conventional expectations of dance and of who can dance, as well as critiquing the medical model of disability where the focus is on ‘fixing’ or normalising the participants’ impairment. In the social model, however, disability occurs when an impaired person encounters inconveniences in interacting with the social environment. Disability is, in reality, a social and environmental issue, which nevertheless can be potentially eradicated in an accessible world where society accommodates the needs of the ‘disabled’ people. Hence, it is not considered to be a problem for people with dementia to dance as ‘normal people’ in a redefined ‘normal environment’.
3.2.2 Reflective Learning

My role as a volunteer-researcher greatly advantaged the implementation of the practical sessions and data collection. I was able to know and understand the participants more fully through close observation and meaningful interaction. They have, in fact, become my dear friends and cheerleaders. The staff members actively acted as my co-researchers and critics. Dance scholar Barry (2017) suggests that, in the community dance context, the facilitator must be prepared to engage in active learning before undertaking any volunteer duty that involves “direct experience in a given real-world situation…[and] real time problem solving to succeed in their task” (p. 125). The true meaning of service-learning can only be delivered if both the facilitator and participants mutually benefit in the learning process. Veteran social educator Furco (2003) asserts that “service learning programs must have some academic context and be designed in a way that ensures both that the service enhances the learning and that the learning enhances the service” (cited in Barry, 2017, p. 125). Through gathering feedback and opinions from the participants and staff members, I was able to question and examine the practical experience continuously, and subsequently improved the research practice. Ultimately, the volunteer position offered me an opportunity to exercise reflective practice in a mutually beneficial situation and consequently, it has meant that the research has developed into a sort of service-learning process in the aspect of content mastery and practical performance (Cheesman, 2011; Foster, 2015; Barry, 2017; Fitzgerald, 2017).
3.3 Data Collection

The ethnographic research spans two major academic fields: social and health sciences. Through addressing intersecting concepts of respective quantitative and qualitative methods, I collected data from both internal and external sources to investigate the effects of the Intuitive Movement Re-embodiment (IMR) program on the well-being of people with dementia. Throughout the ten weeks, the participants contributed their feedback by completing the WHO-5 questionnaire validated by the World Health Organization (1998), in addition to the external reflections provided by the researcher and staff members.

3.3.1 Research Participants

Following the smaller project, the permanent residents of the Enliven St Andrews Care Home continued to take part in the research as a part of their regular leisure activity. New additions were outpatients of the Gibson Day Unit (Dunedin Public Hospital) who were divided into two groups. In total, 26 senior New Zealanders were recruited (25 Europeans and 1 Māori):

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Syndromes</th>
<th>Number of Participants</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>early 60s to mid-80s</td>
<td>Mild to Moderate Dementia</td>
<td>8 (1 male + 7 females)</td>
</tr>
<tr>
<td>Group 2</td>
<td>late 60s to mid-80s</td>
<td>Moderate Dementia</td>
<td>9 (5 males + 4 females)</td>
</tr>
<tr>
<td>Group 3</td>
<td>early 80s to early 90s</td>
<td>Advanced Dementia-D4</td>
<td>9 (2 males + 7 females)</td>
</tr>
</tbody>
</table>

TABLE 8: Research Participants
The decision around participant selection was made based on the recommendation offered by the management of the GDU and Enliven St Andrews Care Home, who made sure that the participants’ physical and psychological conditions allowed them to take part in the music-dance activity safely. Hence, there was no exclusion criteria. The participants’ interest in music and dance was not a selecting criterion in the recruiting process. No audition or investigation in the participants’ arts learning history was attempted. They might or might not receive relevant clinical treatments and all medical information was excluded from the data collection and analysis. The participation in this research was entirely voluntary as all participants and affiliated institutions received no compensation for their contributions.

3.3.2 An Ethnographic Approach for Measuring Well-Being

This study is an ethnographic research with mixed methods situated within an ecological framework (Tehrane & Riggs, 2015; Pelto, 2017). Dating back to the 1950s, a strong tradition of ethnographic research within mental health settings was established. Nowadays, ethnography is still gaining popularity in health research, particularly health and clinical psychology (Foster, 2015).

Most commonly employed in the field of social science, ethnography is a qualitative-based research method that concentrates on the participatory action in the fieldwork, to derive meanings from the community and society (Brewer, 2000; LeCompte & Schensul, 2010). Ethnographer Brewer (2000) explains, “Ethnography is the study of people in naturally occurring settings or ‘fields’ by means of methods which capture their social meanings and ordinary activities, involving the researcher participating directly in the setting…in order to collect data in a systematic manner” (p. 10). Through immersing themselves in the field and experiencing the relevant context, the researchers study the behaviour of a group to understand the way they make meaning in their lives and environment.
When considering satisfaction or happiness, people tend to refer to relatively lasting, justified, good feelings and attitudes about their lives (Michalos, 2017). Hence, a theory of subjective well-being, or Quality of Life, can interpret the level of satisfaction and happiness towards life (Rylatt, 2012; Braüninger, 2014; Wakeling & Clark, 2015; Jing et al., 2016; Michalos, 2017). Philosopher Birnbacher (1999) remarks, “Quality of life judgements…[are] from the subject’s own perspective. [The purpose is] to bring this internal perspective to bear on medical decision-making” (cited in Michalos, 2017, p. 46). Hence, the judgement on well-being is directly proportionate to the net levels of satisfaction generated by individuals affected by it—people are the most qualified evaluators of their own Quality of Life. If conducted with more reasonable and morally acceptable methods, external observation can add value to the evaluation of Quality of Life. Social scientist Michalos (2017) highlights that “a complete account of the quality of life requires a thorough examination of its nature or being as well as an examination of its value or good…What is its nature? What is its value?” (p. 28). In short, the complete meaning of a person’s Quality of Life is elicited through a holistic examination of the relatively objective and subjective conditions.

In this study, I connect the respective terms of the definition of well-being: Happiness in social science, and Quality of Life in health science. In social science, Happiness—a social or subjective indicator—refers to personal feelings, attitudes, preferences, opinions, judgments or beliefs of some sort in an unmeasurable form; in health science, the degree of Quality of Life—an objective indicator—is comparatively easier to observe and measure (Michalos, 2017). Social indicators have been most commonly utilized by psychologists and sociologists who favour the importance of qualitative information and empirical work more than statistical analysis. By contrast, health-related policymaking is often more inclined towards quantitative information gathered from measurable sources of larger size. As a result, the combination of quantitative and qualitative methods employed in the study provided a broader multi-
dimension of Quality of Life, or Happiness, to explain the effects of the Intuitive Movement Re-embodiment (IMR) program on the well-being of the study participants (Treharne & Riggs, 2015; Vroman, 2015).

3.3.3 WHO (FIVE) Well-Being Index Questionnaire

After a single IMR session, the participants’ judgement on their Quality of Life was collected using the WHO (FIVE) Well-Being Index Questionnaire (see Appendix I p. 123), which is among the most widely used questionnaires assessing subjective psychological well-being. Since its first publication in 1998, the WHO-5 has been translated into more than 30 languages and has been used in research studies all over the world. A recent review (Topp et al., 2015) demonstrates that the WHO-5 has high clinimetric validity and can be used as an outcome measure balancing the wanted and unwanted effects of treatments.

The WHO-5 is a short questionnaire consisting of five simple and non-invasive questions, which tap into the subjective well-being of the participants. The scale has adequate validity as an outcome measure in clinical trials and has been applied successfully across a wide range of study fields. In the questionnaire, the participants were required to indicate how they have been feeling over the last two weeks according to five statements:

I. I have felt cheerful and in good spirits.
II. I have felt calm and relaxed.
III. I have felt active and vigorous.
IV. I woke up feeling fresh and rested.
V. My daily life has been filled with things that interest me.

The score of each statement ranges from 0 to 5, the lowest to the highest. By summing up all the numbered responses, a participant’s well-being level is represented by a raw score ranging from 0 to 25, the worst to best possible Quality of Life. Finally, the raw score is
multiplied by 4 to obtain a percentage score ranging from 0 to 100, with 100% the highest score of Quality of Life. Statistically, it provides an objective indicator of a person’s well-being level at a particular point in time.

The WHO’s definition of well-being was utilized to record the judgments made from the participants’ perspective comprehensively. Despite their mental and cognitive decline, the participants were able to reflect their feelings by assigning a numerical value to each of the five statements. However, as pointed out by health researcher Vroman (2015), “the strength of quantitative research for testing theory-based hypotheses comes at the cost of ecological validity, the application to and relevance of the results to the ‘messy’ nature of everyday life” (p. 307). To seek an explanation for the statistical outcomes, I also collected first-hand qualitative information from the participants and co-workers through participant-observation and informal interviews.

3.3.4 Participant-Observation

The volunteer position privileged me to practice participant-observation to collect first-hand data directly from the participants and staff members (Lyons, 2015). During the practical session consisting of piano playing and dancing, I observed these people’s verbal and non-verbal responses, and recorded them in written form as field notes. As described by Brewer (2000), “[participant-observation] involves data gathering by means of participation in the daily life of informants in their natural setting: watching, observing, and talking to them in order to discover their interpretations, social meanings and activities” (p. 59). All positive or negative expressions of the participants were recorded to review their progress over the research period of ten weeks as well as their instant feelings towards the activity; responses of the staff members were also recorded to obtain their subjective opinions on the study.
3.3.5 Informal Interview

Alongside the participant-observation, as one of the community members, I conducted informal interviews with the participants and staff members at times other than the practical session. Another form of qualitative data collection, informal interviews were exercised in the manner of a friendly chat with an open-ended questioning style, in which the interviewees were able to speak and express their opinions freely about the research-related topic (Brewer, 2000; LeCompte & Schensul, 2010; Vaughan, 2015). Via the semi-structured interviews, I was also able to “collect verbal reports of behaviour, meanings, attitudes and feelings that are never directly observed in the face-to-face encounter of the interview” (cited in Brewer, 2000, p. 63). Hence, in the process, the interviewees were approached in a natural setting resembling a community encounter, wherein they directly or indirectly conveyed how they thought and felt about the ongoing activity.

During the interview, the conversations were recorded in written form as field notes without the use of audio and video recording. Since the research was mostly undertaken in the setting of a community activity, it was of utmost importance to ensure that the study participants were able to converse freely in a relatively relaxing mode, and not to be ‘intimidated’ by the context of an investigation related to their health condition. Indeed, my role as a member of the community effectively entailed a sense of friendliness although in reality they were aware of my other role of researcher (Foster, 2015).

The following section will explain how the data was analysed. The positivistic and interpretive approaches were engaged respectively in the process of evaluating the quantitative and qualitative data. In the final stage of data analysis, a convergent method was employed to identify intersecting information of both aspects leading to a conclusion.
3.4 Data Analysis

In this section, I will explain how I analysed the collected data. In academia, researchers extract meanings from the collected data through applying systematic methods based on one or more philosophical paradigms. “A paradigm constitutes a way of looking at the world, interpreting what is seen, and deciding which of the things seen by researchers are real, valid, and important to documents” (cited in LeCompte & Schensul, 2010, p. 57). To glean information from both internal and external perspectives, I referred to two distinctive paradigms: a positivistic paradigm for quantitative data; an interpretive paradigm for qualitative data. A convergent method was then employed to seek intersecting information regarding both aspects. Finally, an integrated conclusion underpinned by an ecological paradigm was delivered (Treharne & Riggs, 2015; Pelto, 2017).

3.4.1 Quantitative Analysis

The quantitative data contributed by the participants, was analysed through calculating and comparing the total scores indicated in the completed WHO-5. Individual participant’s well-being scores collected throughout ten weeks were shown in a table, in order to explore the feasibility of conducting a larger study through using the paired t-test. The paired t-test, sometimes called the dependent sample t-test, is a statistical procedure used to determine whether the mean difference between two sets of observations is zero. In a paired t-test, each subject or entity is measured twice, resulting in pairs of observations. Common applications of the paired t-test include case-control studies or repeated-measures designs. Like many statistical procedures, the paired t-test has two competing hypotheses, the null hypothesis and the alternative hypothesis. The null hypothesis assumes that the true mean difference between the paired samples is zero. Under this model, all observable differences are explained by random variation. Conversely, the alternative hypothesis assumes that the true mean difference
between the paired samples is not equal to zero. The alternative hypothesis can take one of several forms depending on the expected outcome. If the direction of the difference does not matter, a two-tailed hypothesis is used.

Also, the scoring pattern of all participants in a group was presented in a graph in order to integrate with the qualitative analysis. A combined graph was also produced for further comparison among three groups. Following this, the recommended sample size for future larger study was calculated using the confidence level, confidence interval and total population of people living with dementia in New Zealand.

Such a quantitative approach, commonly applied in the natural sciences, has offered a straightforward and comprehensive conclusion in answering the research question. While relatively observable and measurable, the analysis of this portion of data was based on a positivistic paradigm, which aims “to create accurate descriptions of phenomena, devise valid explanations for observed processes, and increase the predictability of human life identifying generalizable causal relationships among phenomena” (cited in LeCompte & Schensul, 2010, p. 58). Hence, by applying a positivistic statistical approach, this study presents an internal perspective that holds true for the participants.

3.4.2 Qualitative Analysis

The qualitative data gathered through observation and interview was analysed using an interpretive approach where the emergent themes were identified by assembling interrelating information and organizing consistent patterns accumulated in the data (Brewer, 2000; LeCompte & Schensul, 2010; LeCompte & Schensul, 2013). To systematically study the participants’ participation pattern and responses in individual sessions, the field notes were organized in two major parts: the evaluation of the participants’ performance standard; the indications of Happiness–Memory Recollection, Social Interaction and Enjoyment. Such an
The interpretive approach is different from the ‘calculative’ measurement engaged in the quantitative counterpart because it is exercised on the grounds of interpretations made by the researcher rather than of an established theoretical approach (LeCompte & Schensul, 2010). Ethnographer Brewer (2000) explains that “Interpretation is the process whereby the ethnographer attaches meaning to the data” (p. 122). In the study, an external view of the effects of the music-dance activity was elicited through interpreting the meanings of the verbal and non-verbal responses of the participants, as well as the feedback provided by staff.

3.4.3 Convergent Analysis

Convergent design, also a form of triangulation analysis, was employed to identify intersecting and divergent information of the analysed data from the internal-quantitative and external-qualitative sources (Curry & Nunez-Smith, 2015). Hence, the quantitative and qualitative data was collected concurrently and analysed separately before the interpretive integration, through which the qualitative findings were used to describe the quantitative results. Through combining and comparing the information obtained from respective perspectives, I sought to extract an integrated view representing all involved individuals including myself, to study the effects of the music-dance activity on the well-being of the participants and to identify the relevant factors. Finally, a crystallised conclusion that reflects a coherent picture was delivered.

The focal objective of this study is underpinned by an ecological paradigm (Pelto, 2017). Qualitative researchers Reichardt & Cook (1979) suggest, “In fact, all of the attributes which are said to make up the paradigms are logically independent…[the practice of] mixing and matching the attributes from the two paradigms to achieve that combination…is most appropriate for the research problem and setting at hand” (cited in Pelto, 2017, p. 39). Rather than shifting or ‘ditching’ the positivistic and interpretive paradigms, the final stage of data
analysis engaged an ecological framework that represents a cross junction or relational view of the epistemologies from multiple aspects.
3.5 Summary

To explore the effects of the Intuitive Movement Re-embodiment (IMR) program on the well-being level of people with dementia, this ethnographic research combines quantitative and qualitative methods to glean information from both internal and external perspectives. The quantitative data—the measures of Quality of Life—was contributed by the participants through completing the WHO-5 validated by the World Health Organization (1998). On the other hand, their Happiness level—the qualitative end of well-being—was investigated through the practice of participant-observation and informal interviews. My role as a community member privileged me with the right to exercise on-site observations and interviews at any time in order to record the verbal and non-verbal responses of the participants. In the interview process, an open-ended questioning style was employed to allow the interviewees to speak and express their opinions towards the music-dance activity freely. Ultimately, the collected data provided a broad multiple dimension of well-being that reflected the perceptions of the participants, researcher and staff members. Additionally, recommendations for advancing the IMR routines were sought throughout the research period.

The analysing process engaged quantitative measurement and qualitative interpretation in extracting meanings from both aspects. By calculating and comparing the total scores collected from the completed questionnaires, individual participants’ Quality of Life spanning over ten weeks was examined quantitatively through statistical analysis based on a positivistic paradigm. Using an interpretative approach, consistent and regular information gathered through the observation and interview methods were identified. Through qualitative analysis the Happiness themes—Memory recollection, Social Interaction and Enjoyment emerged. Finally, a convergent analysis underpinned by an ecological paradigm was employed to seek intersecting information of both aspects, which uncovered the effects delivered by the music-dance activity to the well-being of the study participants.
3.6 Ethical Considerations

The research was undertaken at the Gibson Day Unit (Dunedin Public Hospital) and Enliven St Andrews Care Home, Dunedin. An ethics approval (reference number H17/153, see Appendix III p. 125) under Category A (health research with intervention or observational approach) was granted by the Human Ethics Committee of the University of Otago, alongside a Maori Consultation provided by the Ngāi Tahu Research Consultation Committee (see Appendix IV p. 127). In particular, the practice conducted at the Gibson Day Unit was granted with a Locality Authorisation (project ID 01425, see Appendix V p. 129) by Health Research South.

In the study, the participants were granted a satisfactory degree of agency and independence in making decisions in line with the socio-ecological philosophy that underpinned the research objective which demonstrates democracy and equality in practice. Before the commencement of the practical session, the participants were approached by the staff members and provided with an information sheet and consent form. The consent form was signed only if the participants fully understood and accepted the research procedures and conditions. If they were unable to perform the consent procedure, a family member who is a designated welfare guardian would fulfil the task on their behalf. Also, the staff members were approached with the same information sheet and consent form for their involvement in the activity of participant-observation and informal interviews. Their non-verbal responses and conversations were recorded only if a signed consent form was produced.

Aside from the dementia categories to which the participants belong, the data collecting process did not include their individual health information. All confidential information was excluded from the writing process of field notes, transcripts and thesis to protect the participants’ privacy. Also, anonymity was granted for all participants although their real names were used during the practical session and data collecting activity. Apart from their
estimated ages, the participants’ real identities are not revealed in the written thesis. On the other hand, the staff members at the Gibson Day Unit and Enliven St Andrews Care Home agreed to be addressed by their real first names.

As a volunteer worker, I was trained in the appropriate code of conduct including safety and hygiene, communication skills with people with dementia, and professional protocols in the dementia ward (see Appendix II p. 124). The research practice, including verbal instructions and movement demonstration, strictly adhered to the code of conduct and protocols of the relevant institutions. In the practical session, at least one staff member who might be an activity coordinator or carer, accompanied me to guarantee the professionalism of the research conduct. In order to ensure that the played music did not evoke any negative feelings in the participants, the music repertoire was determined based on the recommendations provided by the appointed activity co-ordinators. Certain songs and tunes that potentially suggested unpleasant memories were avoided altogether. During the dancing session, if any participant expressed negative feelings or physical discomfort, I would immediately consult the staff members and make an appropriate amendment to the movement. The practical session would continue only when the issue was resolved satisfactorily, and all participants were comfortable with the action taken.

The participants’ dignity was of utmost importance for this research. Careful consideration and actions were undertaken throughout to ensure that the research activities did not trigger any negative feeling in any participant, especially those who suffer from emotional anxiety. I planned in advance that if unpleasant incidents occurred, such as a participant’s discomfort towards a conversation topic, I would pause the activity and apologise to the affected participant. In addition to the consultation with the staff members, a thorough discussion would be attempted to understand the reason why such an incident would occur, and to identify a workable resolution. Ultimately, the data collecting activity would resume only
when the affected participant accepted the apology and was comfortable to return to the previous activity.
3.7 Limitations

3.7.1 Limitations of Creative Practice

Practically, it was impossible to implement high consistency in the activity content throughout the practical period. Rather than structuring the program into a fixed syllabus, I have considered it as a framework that provides guidelines in constructing suitable dance routines catered to the conditions of the participants of a group (Odell-Miller et al., 2006; Gayvoronskaya & Shapovalov, 2010; Norcross & Wampold, 2010; Braünger, 2014; Gee & Scott-Multani, 2014; Von Humboldt & Leal, 2015). A reasonable degree of flexibility in the musical choice and dance construction should be exercised to identify the most efficient and workable approach. Particularly in the beginning, when initiating the program to a new group of participants, the activity content was kept relatively simple and manageable; it was then developed and modified progressively according to the responses and feedback provided by the participants (Kuppers, 2000; Eddy, 2002; Cheesman, 2011; Nakajima, 2011; Barry, 2017; Fitzgerald, 2017).

My lack of cultural understanding of the participants resulted in my depending on my co-workers in many ways. The selection of reminiscent tunes was mostly made based on the given recommendations since I had no opportunity to conduct a detailed survey to investigate the musical preference of the participants, due to the limited research timeline of ten months. Previous research has shown that the effectiveness of music can be achieved much more satisfactorily if the repertoire is decided based on the choice of individuals (Blum, 2013; Clark & Warren, 2015; Biggar, 2017). As a result, the musical component of the IMR session might potentially be improved with a survey of the participants’ musical preference being conducted before commencing the practicum.

Regarding the program content, the clinical dimension of the IMR dance routines is limited to the concepts of the Frontal Assessment Battery (FAB), an assessment tool to detect
the brain regions responsible for the performance of the frontal lobes (Dubois & Litvan, 2000; Slachevsky & Dubois, 2004; Oshima, 2012; Hurtado-Pomares, 2017). It directs the practical approach towards the conditions of the majority of participants who have Alzheimer’s disease. Hence, dance routines catered to other dementia syndromes such as Parkinson’s are suggested to meet personal needs of individual participants.

In terms of the creative elements, my skill in piano playing is limited to the former training completed with a Merit pass in the Grade 8 examination of The Associated Board of the Royal Schools of Music (United Kingdom). Other than limited experiences in amateur concerts and competitions, I have not received any formal training in music therapy and Dalcroze Eurhythmics (Mead, 1986; Juntunen & Hyvönen, 2004; Habron, 2014). Besides, my lack of theoretical knowledge and practical training in Dance/Movement Therapy (DMT) has inevitably resulted in a limitation of the therapeutic effects in the movement component (Talbot, 2012; Young, 2012; Payne, 2017). However, my previous experience in contemporary choreography and creative dance teaching, alongside professional advice contributed by my supervisors, has advantaged the dance-making process to a satisfactory degree. Therefore, in the future assistance from at least one qualified music or dance therapist might improve the program.

3.7.2 Limitations of Data Collection

Although ideal for the completion of the Masters thesis, the relatively short timeframe of the practical period (ten weeks) caused a limitation in the data collection that might have included extensive scientific information to the study if expanded (LeCompte & Schensul, 2010). The sample size was considered too small to produce generalisable results. Hence, the statistical calculations of the questionnaire represent only an indication of the level of Quality of Life of a relatively small group of people across ten weeks, without indicating the possible effects of
the IMR program over a longer time period. As suggested by numerous art therapists who specialise in aged health, a minimal timeline of 6 months should ideally be allocated to foster a significant degree of improvement in the clients’ well-being (Stewart, 2004; Van de Winckel et al., 2004; Berrol, 2006; Hamil et al., 2011; Rylatt, 2012; Braüninger, 2014). In the case of advanced dementia, which causes significant cognitive impairment in the sufferers, it may even take longer than 6 months to deliver convincing quantifiable results. By saying that, the Quality of Life of the participants should be examined at least 1 month before and after the research period in order to attempt comparisons in the form of the time series method. Also, a control group is suggested to be included to make a comparison with the treatment groups.

Due to the study’s nature as a leisure-based community activity, quantitative information such as the number of participants, their genders and ages, were not within the control capacity of the research. Also, an inconsistency in the collected data was anticipated due to the difficulty in maintaining regular attendance of individual participants in the music-dance activity. Without the implementation of strict discipline, the participants had the freedom to decide whether they wanted to take part in the practical session. Hence, unexpected absences and occasional withdrawals were accepted and tolerated.

Both my lack of working experience in healthcare and of professional understanding of people with dementia significantly disadvantaged me in collecting qualitative data from Group 3 (Advanced Dementia-D4). On most occasions, it was challenging to record and interpret their responses that were mostly subtle and insignificant. My shortcomings have resulted in some inconsistent information regarding the reactions of the participants with advanced dementia to the IMR program and individual routines throughout the ten weeks.

Also, since the community activity did not contain any form of medicine and physiotherapy, the study is limited to measuring the subjective well-being of people with
dementia, without emphasizing the improvement of their physical and psychological conditions. Without the intervention provided by a group of health experts such as neuroscientists and psychiatrists, it was impossible to measure improvement in certain aspects of dementia due to the complexity of the disease (Mendez & Cummings, 2003; Odell-Miller et al., 2006; Rylatt, 2012; Jing et al., 2016).

3.7.3 Limitations of Data Analysis

Although the quantitative method has provided an internal view from the participants’ perspective, the analysing procedure was still inevitably more or less affected by my perceptions. The process of understanding and interpreting the field notes depended wholly on my judgement, which might vary from time to time. The same limitation applies to the convergent analysis wherein a crystallized conclusion was sought through an interpretative procedure. As a result, such a potential bias was minimised by utilising the theories obtained from the reviewed literature. I also cross-checked the findings with my supervisors and colleagues constantly.

As mentioned earlier, an inconsistency in the collected data existed due to the nature of the practical session as a community activity, whereby unexpected absences and occasional withdrawals by participants were accepted. Finally, the sample size was relatively too small for such a clinical-related research. Hence, a generalised conclusion was not produced for this study.

3.7.4 Confounders

The consenting procedure required the participants to understand and accept the research methodology. Therefore, they were aware of the research objectives and might have agreed to participate in the study with an expectation of ‘improving their well-being’, especially the outpatients of the GDU who received cognitive assessments on a weekly basis. Such an
expectation might have had an enhancing effect on their responses during the practical sessions (Chambless & Hollon, 2012). Although not posing any threat to the validity of the research study, the fact that the participants were not blind might have produced a more optimistic result than it was supposed to be.

The data collected from the weekly session might have varied over time when the participants started to become more familiar with my role—the ‘happiness provider’. Research has shown that the therapeutic alliance may be either a cause or a consequence of improvement in psychotherapy (Chambless & Hollon, 2012). The bond between the participants and I inevitably contributed to some degree to the therapeutic effect of the music-dance activity, especially in the case of ‘The Cedars’ residents who remembered me as the ‘Saturday pianist’. Outside of the practical session, my duty of leading them to the activity area and bringing them back to the ward, indeed granted me another role as someone who offered them empathy and warm feelings.

Also, medication and other treatments undertaken by the participants during the research period of ten weeks, were not taken into consideration in the data analysing process (Chamless & Hollon, 2012). I recognize that any changes in the concurrent medication might have had certain physical and mental influences on the participants; nevertheless, this information was not included in the findings and discussion. Also, participants who underwent other psychotherapies or arts activities might have contributed better outcomes than those who did not. Vice versa, participants who were not reacting well to their treatment might have contributed poorer results to the study.
4. Results:

**Quality of Life & Happiness**

The IMR sessions were conducted with three groups of participants recruited from the Gibson Day Unit and Enliven St Andrews Care Home from March to May 2018, with a total of ten weekly sessions for each group. In brief, this cohort of participants represents three respective stages of dementia: Group 1—Mild to Moderate Dementia (early 60s to mid-80s); Group 2—Moderate Dementia (late 60s to mid-80s); Group 3—Advanced Dementia-D4 (early 80s to mid-90s). Each week, similar content, including music and movement themes, was taught to all groups of participants in order to maintain consistency for the purposes of the data analysis.

The quantitative analysis measured data from a total of 22 participants who attended no fewer than six sessions. First, the participants’ total Well-being scores collected from the questionnaire were arranged in a table to measure the statistical results using the calculation of paired t-test (see Quantitative Analysis p. 64). A combined graph was generated to compare the scoring patterns of respective groups. Next, the recommended sample size for a future larger study was calculated using the confidence level, confidence interval and total population of people living with dementia in New Zealand. Finally, graphs of individual groups’ scoring dynamics were presented in combination with the qualitative analysis.

The qualitative data was analysed in two sections: the evaluation of participants’ independent performance; thematic analysis based on existing theories and consistent patterns.
First, individual group’s independent engagement in each dance routine was evaluated and given a score (see Appendix VI to VIII p. 130-132). For instance, if all participants in a group managed to perform a specific routine accurately without being given a demonstration, a score of 5 was assigned. According to the descriptions in the field notes, a grading rubric was developed: 5− “All of the participants”; 4− “Almost all of the participants”; 3− “More than half of the participants”; 2− “Less than half of the participants”; 1− “A couple of them”; 0− “None of the participants”. Following this, a total score for each session was produced by summing up all individual scores on each dance routine. Due to the practicum being a recreational community activity, the dance routines were introduced progressively throughout the practical sessions to allow the participants to adapt to the activity comfortably. Hence, the total score was divided by the number of taught dance routines, to indicate the average performance standard of the participating group during a session.

Secondly, the participants’ responses, recorded through the exercise of observation and informal interview, were interpreted and coded into three themes by referring to the theories extracted from literature: Memory Recollection, Enjoyment and Social Interaction (see Appendix IX to XI p. 133-137)—which together define the term Happiness in the study. In this chapter, the Happiness indicators taken from the thematic analysis were marked as ‘✓’ in the chart. Total numbers of ‘✓’ were calculated to statistically show how much Happiness was observed in each session. By combining the two sets of data, the qualitative analysis seeks to identify the participants’ progress in performance and the effects of the IMR routines in stimulating their positive responses.

Ultimately, the findings have been produced by integrating all analysed data: the statistical results of the participants’ self-rated Quality of Life; the average performance
standard of the participating groups; indicators of Happiness—Memory Recollection, Enjoyment and Social Interaction.
### 4.1 Statistical Analysis

#### 4.1.1 Combined Analysis

**TABLE 9: Total Well-Being Scores of All Study Participants (blue: Males; red: Females)**

<table>
<thead>
<tr>
<th>Order</th>
<th>Pseudonyms</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Session 4</th>
<th>Session 5</th>
<th>Session 6</th>
<th>Session 7</th>
<th>Session 8</th>
<th>Session 9</th>
<th>Session 10</th>
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<td>100</td>
<td>80</td>
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</table>

**Mean**  
72.9  
93.3  
81.1

**±S.D**  
16.2  
5.6  
21.9

**Note:**

- Originally 26 participants took part in the study, however those who attended fewer than six sessions have been excluded in this analysis.

- Group distributions:

  **Group 1 (Mild to Moderate Dementia):**  
  Participants #1 to #8 (7 participants)

  **Group 2 (Moderate Dementia):**  
  Participants #9 to #16 (7 participants)

  **Group 3 (Advanced Dementia-D4):**  
  Participants #18 to #25 (8 participants)
Baseline to End (Session 10)

(z for 95% CI= 1.96; declare p larger than alpha= 0.05 is not significant)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>95% Conf Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>22</td>
<td>72.9</td>
<td>16.2</td>
<td>68.6</td>
</tr>
<tr>
<td>End</td>
<td>22</td>
<td>81.1</td>
<td>21.9</td>
<td>69.3</td>
</tr>
<tr>
<td>Diff</td>
<td>22</td>
<td>-8.2</td>
<td>4.1</td>
<td>-12.6</td>
</tr>
</tbody>
</table>

mean(diff) = mean(baseline-end)    t = -0.9644
Ho: mean(diff) = 0                      degrees of freedom = 21

Ha: mean(diff) < 0   Ha: mean(diff) != 0   Ha: mean(diff) > 0
Pr(T < t) = 0.1727   Pr(|T| > |t|) = 0.3453   Pr(T > t) = 0.0936

Baseline to Session 6

(z for 95% CI= 1.96; declare p larger than alpha= 0.05 is not significant)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>95% Conf Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>22</td>
<td>72.9</td>
<td>16.2</td>
<td>68.6</td>
</tr>
<tr>
<td>Session 6</td>
<td>22</td>
<td>93.3</td>
<td>5.6</td>
<td>89.5</td>
</tr>
<tr>
<td>Diff</td>
<td>22</td>
<td>-20.4</td>
<td>2.8</td>
<td>-20.4</td>
</tr>
</tbody>
</table>

mean(diff) = mean(baseline-session 6)    t = -17.087
Ho: mean(diff) = 0                      degrees of freedom = 21

Ha: mean(diff) < 0   Ha: mean(diff) != 0   Ha: mean(diff) > 0
Pr(T < t) = 0.9971   Pr(|T| > |t|) = 0.8874   Pr(T > t) = 0.001**

The participants’ mean Well-Being scores increased from 73 at baseline to 81 at the end of the intervention (session 10). The 95% Confidence Interval for this difference (4.6, -12.6*) was wide, largely driven by the small sample size (22 participants). As a result, I would recommend that future studies with a larger sample size are analysed to determine whether this clinically meaningful difference is statistically significant. However, when testing for differences between baseline and scores following session 6 the mean difference was t=17.1 and it was statistically significant (p=0.001**).
Using the table below, the mean Well-Being scores (session 1 to 10) of all study groups were calculated and presented in a combined line graph.

### TABLE 10: Mean Well-Being Scores of All Study Groups

<table>
<thead>
<tr>
<th>Mean Well-Being Scores</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Session 4</th>
<th>Session 5</th>
<th>Session 6</th>
<th>Session 7</th>
<th>Session 8</th>
<th>Session 9</th>
<th>Session 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 (Mild to Moderate Dementia)</td>
<td>72</td>
<td>64.5</td>
<td>68</td>
<td>70</td>
<td>65.5</td>
<td>54.6</td>
<td>62.3</td>
<td>70</td>
<td>65.6</td>
<td>49</td>
</tr>
<tr>
<td>Group 2 (Moderate Dementia)</td>
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<td>86.3</td>
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<td>94.3</td>
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<td>92</td>
</tr>
<tr>
<td>Group 3 (Advanced Dementia-D4)</td>
<td>74</td>
<td>67.2</td>
<td>69.3</td>
<td>80</td>
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<td>89.6</td>
<td>87.3</td>
<td>79.5</td>
<td>92</td>
<td>79</td>
</tr>
</tbody>
</table>

### GRAPH 1: Scoring Patterns of Mean Quality of Life of All Study Groups

The mean baselines of all study groups are very close, while Group 1 has the lowest (72) and Group 2 the highest (76). In hindsight, Group 1 did not show any improvement throughout. In contrast, Group 2 indicated extremely high scores from session 2 onwards consistently and significant improvement in session 10 (92). For Group 3, although in session 10 a minor improvement (79) was obtained as compared to session 1 (74), the progress pattern...
is uneven due to the frequent missing data. Technically, the scoring patterns of all study groups are not obvious enough to be interpreted if a common conclusion is to be generated.
4.2 Group 1: Mild to Moderate Dementia (Early 60s to Mid-80s)

As demonstrated in the graph above, the Quality of Life pattern of most members in Group 1 did not show vast changes in the first five weeks. It decreased slightly in session 6 and picked up from session 7 to 8. In the last two sessions, it decreased after half of the group members were either discharged from the GDU or transferred to other groups (see also the concurrent decrease in performance standard and Happiness). From session 2 to 10, the Group 1 members hardly indicated an improvement in their Quality of Life at any point if compared to session 1.
TABLE 11: ‘Quantitized’ Qualitative Analysis—Group 1 (Mild to Moderate Dementia)

<table>
<thead>
<tr>
<th>Date</th>
<th>Evaluation of Independent Performance (full marks 5)</th>
<th>Indicator(s) of Memory Recollection</th>
<th>Indicator(s) of Social Interaction</th>
<th>Indicator(s) of Enjoyment</th>
<th>Total Indicator(s) of Happiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
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<td>√</td>
<td>2</td>
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</tr>
<tr>
<td>22 March</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 2</td>
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<td>√</td>
<td>2</td>
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<td>26 April</td>
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<td>3 May</td>
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<td>Session 8</td>
<td>4.5</td>
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<td>10 May</td>
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<td>4.2</td>
<td>√</td>
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<td>17 May</td>
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<td>24 May</td>
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<tr>
<td><strong>Average</strong></td>
<td><strong>3.9</strong></td>
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<td></td>
<td></td>
<td><strong>Total: 23</strong></td>
</tr>
</tbody>
</table>

As shown in TABLE 11, in general the participants of Group 1 demonstrated an above average standard of performance, as indicated by the average score of 3.9 out of 5 marks. Notably, almost all of them performed better (4 to 5 marks) in Synchronize-with-the-Music (Tempo & Dynamics), Move-and-Pause and Themed Improvisation (see also Appendix VI p. 130). From session 6 onwards, improvements were noticeable in Movement Patterning, Contrasting Movement and Synchronize-with-the-Music (Pitch).

Throughout the first eight weeks, the performance standard of this group of people improved progressively, while numerous positive responses in the form of Memory Recollection, Enjoyment and Social Interaction were observed concurrently. Throughout the session, especially during the Themed Improvisation routine, they shared many personal stories
stimulated by the music, movement and the given concept. Discussion about past memories were initiated and elaborated, for instance: “I used to make nappies for the babies in the 70’s” (Participant #3, mid-70s)—after the song *Hey Jude*; “I did house chores for the whole family” (Participant #1, early 60s)—after the ‘laundry washing’ dance; “I played netball before” (Participant #5, early 70s) –after the ‘basketball’ dance; “I used to be afraid of marching at senior school” (Participant #1, early 60s)—before the Move-and-Pause; Participant #1 (early 60s) commented that the exercise Synchronize-with-the-Music (Pitch) made her feel like walking up and down the staircase: “In the past I had to walk up to the 8th floor [of the school building]!”

In addition, the participants regularly offered positive feedback regarding their enjoyment in the IMR session: “I felt it [Move-and-Pause] stimulated my brain!” (Participant #3, mid-70s); “It was fun!” (Participants #5 & #8, early & mid-70s); “Thank you very much, love!” (Participant #4, mid 80s); “I have never done this (Synchronize-with-the-Music) before, I must show him [husband] today!” (Participant #2, early 70s). Participant #3 (mid-70s) even said, “I love this [the IMR session], it’s so much better than the bloody exercises we do in the afternoon!” Consequently, such spontaneous responses often translated to further Social Interaction including movement mirroring, joke making and sharing of stories accompanied with smiles and laughter.

However, in session 9 and 10, the group size halved after four members were either discharged from the GDU or transferred to another group. The remaining participants showed less interest in dancing and preferred to interact with each other through casual chit-chat, followed by a lower performance standard and fewer indicators of Happiness in the last two sessions (see also the concurrent decrease in Quality of Life).
4.3 Group 2: Moderate Dementia (Late 60s to Mid-80s)

GRAPH 3: Scoring Patterns of Quality of Life of Group 2 Members (Moderate Dementia)

Notably, following session 2, most participants in Group 2 indicated extremely high scores in their self-rated Quality of Life throughout the nine weeks. More than half of the group members frequently marked full scores in the questionnaire. As shown in GRAPH 3, a steep rise in most Group 2 members’ Quality of Life was seen from session 1 to 2. After that, it slightly decreased in session 4 and increased from session 5 to 7. A common drop in Quality of Life occurred in session 8 (see also the concurrent decrease in performance standard and Happiness), then it slightly picked up in the last two sessions.
TABLE 12: ‘Quantitized’ Qualitative Analysis—Group 2 (Moderate Dementia)

<table>
<thead>
<tr>
<th>Date</th>
<th>Evaluation of Independent Performance (full marks 5)</th>
<th>Indicator(s) of Memory Recollection</th>
<th>Indicator(s) of Social Interaction</th>
<th>Indicator(s) of Enjoyment</th>
<th>Total Indicator(s) of Happiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>21 March</td>
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<td>Session 2</td>
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<td>√</td>
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<td></td>
</tr>
<tr>
<td>Session 3</td>
<td>3.2</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>3</td>
</tr>
<tr>
<td>4 April</td>
<td></td>
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</tr>
<tr>
<td>Session 4</td>
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<td>√</td>
<td>√</td>
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<td>3</td>
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<tr>
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<td>18 April</td>
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<td>√</td>
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<td>3</td>
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<tr>
<td>2 May</td>
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<tr>
<td>Session 7</td>
<td>3.5</td>
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<td>9 May</td>
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<tr>
<td>Session 8</td>
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<td>16 May</td>
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<tr>
<td>Session 9</td>
<td>3.6</td>
<td>√</td>
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<tr>
<td>23 May</td>
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<tr>
<td>Session 10</td>
<td>3.6</td>
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<tr>
<td>30 May</td>
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</tbody>
</table>

Average: 3.2                                           Total: 25

The participants in Group 2 performed at a slightly above average standard, as suggested by the average score of 3.2 out of 5 marks. They performed better in Synchronize-with-the-Music (Tempo & Dynamics), Move-and-Pause and Themed Improvisation where a score of 4 was frequently assigned (see also Appendix VII p. 131). Overall, this group of people did not show progressive improvement in individual routines with weekly practice. A poorer performance standard was observed in session 8 (see also the concurrent fewer indicators of Happiness and lower Quality of Life). Nevertheless, in session 9 and 10, an improvement in their performance standard (and also Happiness and Quality of Life) was recorded.

On several occasions, the participants spontaneously sang some other songs and danced in a circle, presumably as they used to do in the past. Actions of Memory Recollections were
observed almost every week: “my friend used to work in a freezing cold butchery” (Participant #12, mid-70s)–after Move-and-Pause; “I used to play piano when I was young” (Participant #13, late 60s)–after the singing session; “I know a lot about rugby but I need time to get the memory back…” (Participant #14, late 60s)–after the ‘basketball’ dance; “I used to attend the ‘Christian Brothers’ school…I was locked down very often” (Participant #14, late 60s)–after a spontaneous circle dancing after the session. However, most of the time they hesitated to extend the conversation associated with the recalled memory and ended it shortly.

Additionally, positive feedback on the IMR session was given: “Quite good actually!” (Participant #10, mid-70s), “I love the dance!” (Participant #15, early 80s), “Bloody love that!” (Participant #13, late 60s). Interestingly, this group of participants demonstrated a great sense of humour as observed on numerous occasions of Social Interaction: the improvisation duet danced by Participant #13 (late 60s) and Participant #14 (late 60s); Participant #12 (mid-70s) and Participant #14 (late 60s) messed with each other’s laundry because ‘they were not good at washing clothes’; Participant #14 (late 60s) jokingly requested if he could ‘refroze’ after Move-and-Pause; a few participants jokingly asked me where the basketball was before the ‘basketball’ dance; Participant #13 (late 60s) blew back at me vigorously in response to my ‘strong wind’ while Participant #12 (mid-70s) trembled like a shaking tree.

Regardless of the positive responses consistently observed in the first seven sessions, in session 8 a significant depreciation in mood was observed as some participants became less responsive and less talkative, followed by a decrease in performance standard (and Quality of Life). Other signs such as forgetting the instructions and taking more time in completing the questionnaire implied that the ongoing neurological deterioration, which negatively influenced their mood and behaviour, might be advancing in some of them. Senior staff at the Gibson Day Unit, Nikita recalled, “[In the morning] A few of them struggled cognitively to order lunch.
from the menu [which they have been doing regularly]. We presume that this [the observation] is in line with their cognitive deterioration.”

In response to the setback, I restructured the program content by eliminating the routines that they obviously did not like to do and adding new creative elements and more group interaction. In session 9 and 10, an improvement in performance standard and more indicators of Happiness (and slightly higher Quality of Life) were recorded.
4.4 Group 3: Advanced Dementia-D4 (Early 80s to Mid-90s)

As demonstrated in the graph above, most members in Group 3 indicated an uneven progress in their Quality of Life across the ten weeks. Higher points are more seen in session 6 and 9. In session 10, the Quality of Life of most of them slightly improved in comparison to that of session 1. Obviously, Group 3 has more missing data as compared to other groups due to the frequent absences of some participants. Hence, a common interpretive analysis for this group cannot be produced.
TABLE 13: ‘Quantitized’ Qualitative Analysis–Group 3 (Advanced Dementia-D4)

<table>
<thead>
<tr>
<th>Date</th>
<th>Evaluation of Independent Performance (full marks 5)</th>
<th>Indicator(s) of Memory Recollection</th>
<th>Indicator(s) of Social Interaction</th>
<th>Indicator(s) of Enjoyment</th>
<th>Total Indicator(s) of Happiness</th>
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</thead>
<tbody>
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<td>Session 8</td>
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<td>Session 10</td>
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<td>12 May</td>
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<td>Average</td>
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In general, the performance standard of participants in Group 3 was slightly lower than average, as suggested by the average score 2.4 of 5 marks. As they became more familiar with the activity, peers and environment, their performance slightly improved from session 3 onwards. However, due to the irregular attendance caused by unforeseen factors such as mood swing, anxiety, physical discomfort of certain participants and organizational issues, the improvement did not progress positively until session 8. Overall, most of them displayed significant enthusiasm in the singing session and performed relatively better in Synchronize-with-the-Music (Tempo & Dynamics) and Move-and-Pause (3 to 4 marks out of 5). In session 9 and 10, their performance vastly improved when more imagery was used and group interaction was encouraged.
Despite the minor improvement in their performance standard, the speech impairment and physical passivity of this group of people have made it technically difficult to capture and understand their verbal and nonverbal expressions. On many occasions, Participant #20 (mid-80s), #22 (early 90s) and #23 (late 80s) told me that “You are a very good girl!”; once, Participants #20 (mid-80s) said, “You must be very good to do this!”—which could be interpreted in a number of ways such as simply an expression of appreciation or a re-membered maternal instinct of encouragement to a cherished younger person. Such a complicated situation inevitably hindered efficient recordings and interpretations of the participants’ responses, as displayed by the inconsistent recording of Happiness in TABLE 13.

In light of these technical issues, I began to further consult my co-workers, who are more experienced in dementia care, in order to understand the responses conveyed by this group of people. From session 7 onwards, extra consultations from my co-workers along with improvement in my observational skill, significantly enriched the content of the qualitative data that translated to more indicators of Enjoyment and Social Interaction. Nevertheless, responses associated with Memory Recollection were rarely observed apart from Participant #25’s (late 80s) narrative about her fear towards the submarine—after I played the tune Yellow Submarine—“I had very a bad experience in the war…the submarine is very dangerous!”
5. Discussion & Conclusion:

A Coherent Picture

5.1 Quality of Life

The statistical significance (p. 81) demonstrates the feasibility of conducting a larger study to further examine the effectiveness of the IMR program to the Quality of Life of older adults living with dementia. On the other hand, the largely distinctive scoring patterns of three respective groups reflect that, the participants’ subjective well-being was primarily determined by individuals’ health and social conditions, which in turn decisively influenced the outcomes of the IMR sessions.

The baseline scores in Group 1 (72, see p. 82) were not statistically different with that for Group 2 and 3. Although most participants in Group 1 enjoyed the IMR sessions, as evident in the qualitative findings, no improvement in their self-reported Quality of Life was recorded. Since most participants’ Quality of Life dropped in session 6 where a loss of interest might have occurred (in contrast to the statistical significance found in Statistical Analysis p. 81), a break between two five-week interventions is suggested to prevent such a setback. Constant introduction of new creative elements in music, movement and improvisation themes is recommended to maintain their interest in participation continuously throughout the intervention period.
The participants in Group 2 (Moderate Dementia) exhibited slightly higher mean baseline (76) than other two groups and extremely high scorings in the nine weeks following session 1. A vast improvement was instantly observed following session 2. From then on, full marks were frequently assigned by the majority of group members. Such a phenomenon is in line with the conclusion of Moyle et al (2011), who inform us that “[the] impaired insight was associated with better QoL [Quality of Life] for those with moderate dementia” (p. 2243). The optimistic attitude and behaviour of this group of people could be interpreted as a consequence of their adaption to the disease and adjustment in lifestyle. Nevertheless, a minor drop in their self-rated Quality of Life occurred when a few of them showed a loss of interest (session 4) or signs of deterioration (session 8) (see p. 87). Hence, a break between two five-week interventions is recommended to prevent their loss of interest in participation while new creative elements in music and movements need to be constantly introduced in order to refresh and prolong the therapeutic effects.

In Group 3, most participants’ Quality of Life improved by small gains across the nine weeks following session 2. However, as mentioned in the Results chapter (p. 90), the high absence frequency has caused an inconsistency in the data pattern. Also, as pointed by researchers Mjørud et al (2014), the Quality of Life of people with dementia residing in a care home is closely associated with physical situations such as moving into and living in the institution in addition to their adaption to the disease. In saying that, the overall improvement in Quality of Life of Group 3 cannot be generalised to all group members or to other people with advanced dementia in different living contexts. As a result, for the participants in Group 3, a continuous and consistent participation with minimal absence is required if a generalisable result is to be obtained.

As discussed in the Dance Facilitation section (p. 55), the activity facilitation as a form of accessible dance culture, should be re-arranged in order to cater to the context of
participating individuals. Hence, the sessions should be programmed and scheduled accordingly so that individuals’ interest and enjoyment are maintained throughout the intervention period (Kuppers, 2000; Zeindlinger, 2014; Nakajima, 2011).
5.2 Happiness

Based on the on-site observations and a grading rubric on the participants’ independent performance in individual routines (see also Appendix VI to VIII p. 130-132), I have discovered that all study groups generally responded better to the concepts of Synchronize-with-the-Music (Tempo & Dynamics) and Move-and-Pause, and Theme Improvisation. Notably, participants with mild and moderate dementia (Group 1 & 2) who had better cognitive reserve actively contributed ideas and movements in Themed Improvisation where ‘stories’ and imagery associated with their daily lives were incorporated. On the other hand, most participants were challenged in remembering the structured movement combination (Movement Patterning) and in responding accurately to the higher pitch (Synchronize-with-the-Music–Pitch). The findings above suggest that their short-term memory capacity and capability of recognizing higher pitch have been compromised to varying degrees alongside their cognitive impairment (Etgen, 2015). The concept of Contrasting Movement was also found to be challenging for most of them since they tended to copy my movement rather than to ‘contrast’ it as instructed.

The participants in Group 1 (Mild to Moderate Dementia) showed noticeable improvement from session 6 onwards, which was probably a positive outcome of regular and consistent practice. The participants in Group 2 (Moderate Dementia) and 3 (Advanced Dementia-D4) only demonstrated minor improvements from session 7 and 9 onwards respectively. This finding implies that the cognitive impairment in later stages of dementia can have a negative impact on individuals’ capability to make consistent progress in learning new skills (Etgen, 2015).

By comparing the qualitative analysis of three study groups, I discovered that the participants’ perceived retained cognitive capability depended on how observable their
responses were. In comparison to Group 3, a relatively better cognitive reserve enabled the participants in Group 1 and 2 to communicate and express their feelings with more clarity and comprehensiveness—which in turn allowed me to record and interpret their responses more easily. For these two groups, numerous occasions of Memory Recollection, Enjoyment and Social Interaction were observed in almost every session—which were then transformed ‘quantitatively’ into several indicators of Happiness. In particular, the content of recalled memory often extended to further discussion and interaction among the participants in Group 1 whose memory reserve was better relatively to the other groups. This response was rarely observed in Group 2 and 3.

<table>
<thead>
<tr>
<th></th>
<th>Average Score of Independent Performance (full marks 5)</th>
<th>Total Indicators of Happiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Mild to Moderate Dementia</td>
<td>3.9</td>
<td>23</td>
</tr>
<tr>
<td>Group 2: Moderate Dementia</td>
<td>3.2</td>
<td>25</td>
</tr>
<tr>
<td>Group 3: Advanced Dementia (D4)</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

Since the total numbers of Happiness indicators are not proportionate to the average scores of performance standard (see TABLE 14), it was found that the level of the participants’ Happiness was not determined by how well they performed but the way their cognitive capability was reflected indeed. In saying that, it is necessary to point out that my lack of experience in working with people with dementia has affected the evaluation on their performance, especially that of people with advanced dementia. As explained by Moyle et al (2011), “the person with dementia adjusts their evaluation standard in accordance with the physical declines of age and the progression of dementia” (p. 2243). As their cognitive capacity declines, people with dementia eventually adjust their perspective of how they viewed their
physical condition, which is in line with their adaptation to the disease and changes of lifestyle (Moyle et al, 2011; Mjørud et al, 2014). Admittedly, in this study, an ‘adjustable measure’ adapting to the participants’ cognitive capacity was not efficiently adopted while their performance standard was evaluated. Therefore, the conventional concept in dance—‘skill mastery’—was not a causal factor determining the level of the dementia suffering participants’ motivation and enjoyment in the IMR sessions (Kuppers, 2000; Eddy, 2002; Nakajima, 2011).

The effect of the mind-body connection emphasized in the IMR program was evident as a sense of aliveness was frequently observed in most participants during and after the session (Eddy, 2002; Sheets-Johnstone, 2009; Homann, 2010). The repetitive exercise of moving to the music allowed the participants to re-engage their brain-body connection through responding to a variety of musical cues (Habron, 2014). In session 3, Participant #3 (mid-70s, Group 1) said, “I felt it [the exercise] stimulated my brain!”; Participant #2 (early 70s) agreed and added, “It’s the concentration that exercised our brains!” Such an effect was observed on a few participants in Group 2 (Moderate Dementia), who often expressed hesitation regarding participation to the staff in the morning. Senior staff at the GDU, Denise recalled, “Some of them said ‘That’s alright!’, ‘Ting again?!’, ‘It’s childish and boring! But after the session, they became more spontaneous and active.” Her colleague nurse specialist Leonie said, “I feel it [the hesitance] might be because of the challenges and concentration [required in the routines]. They are extremely happier afterwards. There is always euphoria and enjoyment among them…Participant #13 (pseudonym) danced to the dining room spontaneously, and it inspired others to dance with her.”

The comments above suggest that Intuition—the key element of the IMR program—was able to enhance the participants’ spontaneity in moving leading to enjoyment, although some of them perceived that the routines were mind challenging (Sheets-Johnstone, 2008b; Homann,
Leonie also offered feedback, “They [the participants] are elated and joyful [after the session] … It [music and dance] adds to their quality of life with challenging their thinking.” Dementia sociologist Kontos (2014) further elaborates that “the key to the seemingly inexplicable coherent and spontaneous expressions of musicality that emerge from the depths of dementia is to be found in the body’s own primordial potential and sociocultural significance that sustain selfhood at pre-reflective level” (p. 8). The intuition-led approach, which allowed the participants to move spontaneously as called upon by their instinctive musicality, effectively increased their ability in engaging their mind and expressing their emotions. Therefore, the act of focusing on the music and responding with their own intuitive movements generated the joy coming from within—which is one of the emphases of the Eurhythmics theory adopted in the IMR program. (Mendez & Cummings, 2003; Arroyo-Anlló et al, 2013; Boyle et al, 2014; Boyle & Warren, 2014; Habron, 2014; Kontos, 2014; Murrock & Groar, 2014; Lem, 2015; Birt et al, 2017).

According to the thematic analysis of the participants’ Happiness (see Appendix IX to XI p. 133-137), numerous positive responses were associated with humorous expressions and playfulness. For instance, Participant #12 (mid-70s, Group 2) reminded everyone to ‘take off’ their clothes for the ‘laundry washing’ dance; Participant #5 (early 70s, Group 1) and #8 (mid-70s) remarked that “It [the session] was fun!”; some participants of Group 2 jokingly asked where the basket was before the ‘basketball’ dance; Participant #14 (late 60s, Group 2) often created funnier versions of the given movement and poses; Participant #20 (late 80s, Group 3) who lacked interest in moving, actively engaged in the Move-and-Pause routine when she was allowed to pose ‘awkwardly’. In response to this finding, healthcare researchers Birt et al (2017) explain that “in dementia humour may be a way of approaching and dealing with the inevitable losses which accompany changing status and roles” (p. 205). From my observation, the participants displayed more affinity towards the session when given more freedom and space
to generate fun and laughter. Senior activity co-ordinator at the Enliven St Andrews Care Home, Sue agreed: “They [people with dementia] like fun and a laugh.” Senior staff at the Gibson Day Unit, Christine shared her experience: “People with cognitive impairment are more likely to remember something when they are feeling happy.” “The most important aspect here [the dementia context] is the symmetry of humour”, remarked by dementia sociologist Siiner (2017) (p. 17). In summary, the use of an appropriate amount of humour is recommended in motivating the participants’ spontaneous engagement and interaction with each other.

All study groups portrayed a significant degree of imagination through performing movement (Homann, 2010; Payne, 2017; Young, 2017). In the ‘bubble & rock’ dance (Themed Improvisation) where an imaginary rock was passed around in the circle, some participants enjoyed embodying the ‘heavy and hard’ features of a rock. At the end of the routine, Participant #12 (mid-70s, Group 2) managed to put the ‘rock’ down extremely slowly and ‘seriously’. Participant #3 (mid-70s, Group 1) liked this imagery concept and practiced it at home: “I played the ‘bubble and rock’ with my grandchildren and they loved that!” Senior activity co-ordinator at the Enliven St Andrews Care Home, Mary complimented the use of the imagery element: “They [the Group 3 members] really enjoyed passing the rock!” In line with this finding, healthcare researcher Boyle (2014) suggests that pragmatic and creative forms of agency shall be provided to people with dementia, especially those in an advanced stage who are still able to express their perceptions, feelings and desires in habituated, embodied or emotional forms—“People with dementia may still demonstrate imaginative agency” (p. 1140). By engaging familiar stories and movement themes, the use of creative motifs can effectively stimulate the imaginative capacity of people with dementia, which then can be expressed through their natural body language (Boyle, 2014; Boyle & Warren, 2014; Kontos, 2014).
The group context of the IMR session also fostered the participants’ social interaction with peers and staff (Lukianova & Fell, 2015; Bench, 2016; Fitzgerald, 2017; Von Humboldt & Leal, 2017). The interactions in verbal and non-verbal form generated meaningful communication and friendship among them. Discussions extended from the recalled memories, the spontaneous ‘social dancing’ and the use of animated facial expressions when responding to peers were among the interactive activities observed. Senior activity co-ordinator at the Enliven St Andrews Care Home, Mary recalled, “Although most of them [in Group 3] cannot perform the movements very well, I still could see that they interacted with each other a lot and enjoyed the session very much… You can see that from the spark in their eyes.” Her colleague Sue described the ‘invisible’ interaction among people with advanced dementia—“The interaction between them is subtle…they get some form of communication or recognition…sort of like a feeling.” Concerning the importance of interaction for people living with dementia, Kontos (2012) remarks, “selfhood is a product of reflective thought or social interaction to treating the body’s creative and intentional capacity as being fundamental to selfhood” (p. 11). For those whose physicality has been severely compromised by the disease, interacting with other participants even through the tiniest gestures could serve as a source of agency and empowerment (Mendez & Cummings, 2003; Earhart, 2009; Coaten & Newman-Bluestein, 2013; Guzman-Garcia et al, 2013; McDermott et al, 2014; Lapum & Bar, 2016; Thøgersen-Ntoumani et al, 2017).

Information obtained from informal interviews with staff and participants, on the other hand, highlighted a number of reasons for the decline in interest of participants in Group 1 and 2, which showed an alarming decrease in fewer indicators of Happiness (and the concurrent lower Quality of Life) in the last four sessions. Firstly, the size of Group 1 became much smaller after four members dropped out and this consequently caused visibly reduced motivation in the remaining members. Secondly, most participants found the selected tunes
‘too old’ and not connected to them. Participant #3 (mid-70s, Group 1) once complained about the music repertoire: “John Brown’s Body is depressing!” while other group members nodded. Thirdly, the continuous practice of the dance routines became repetitive and predictable and therefore the participants lost the feeling of excitement they had had in the beginning. Finally, the Group 2 members felt overwhelmed by the number of challenges presented and did not enjoy being continuously ‘mentally threatened’.

While the group size and dropouts were technically outside of the study’s control, the setbacks above indicated that ‘younger’ music and new creative elements need to be constantly introduced in order to maintain the participants’ interest. To prevent the participants from feeling ‘challenged mentally’, easier and more relaxing exercises should be implemented between the set IMR routines in order to allow them to enjoy the whole session more comfortably.
5.3 Conclusion: Well-Being—Integrating Quality of Life and Happiness

Both the statistical results and the qualitative findings presented previously suggest that an alternative arrangement, for instance a three-week interval between five continuous sessions, is more advisable for outpatients suffering from mild to moderate dementia. Weekly outpatients at the GDU, who still enjoyed a normal community life, were inclined to perceive the music-dance program as a leisure activity rather than an essential intervention (Jing et al, 2016). On the other hand, continuous weekly intervention is recommended for the long-term hospitalised residents with advanced dementia who lack constant contact with family and community (Broome et al, 2017).

Empirical evidence shows that through the creative use of reminiscent music and intuitive movement generation, the IMR program provided a sense of aliveness, fun, humour, playfulness and imagery that motivated the study participants to dance and interact with joy. In the future, the regular introduction of new creative elements in music, movement and peer interaction are suggested in order to foster positive outcomes. Based on the analysis and evaluation of the performance standard of all study groups, it is recommended that modifications catered for the respective stages of dementia are to be developed according to the concepts of the six IMR routines with additional simple and more relaxing exercises.

Healthcare expert Boyle (2014) suggests, “In order for people with dementia to achieve equality, their potential agency needs to be recognised and facilitated” (p. 1141). Through catering to their needs, an adequate flexibility in the activity facilitation inclusive of the program content and scheduling, provides a sense of agency and empowerment for people living with dementia who are in reality dependent on other people to enable their social support (Jennings, 2009; Cheesman, 2011; Moyle et al, 2011; Boyle, 2014; Broome et al, 2017).
5.4 Issues in Measuring Quality of Life

In this study, the participants’ cognitive impairment and ongoing deterioration that have compromised their competency in reading and understanding, have inevitably contributed some degree of ‘potential inaccuracy’ or ‘impaired insights’ to the quantitative data (Moyle et al, 2011). The methodological challenges in improving the Quality of Life (QoL) of people with dementia and measuring the effectiveness of interventions often raises questions and invites debates regarding the accuracy of data. For more than a decade, researchers have been facing technical difficulties associated with determining the different domains of Quality of Life and questionnaire statements in order to investigate the psychological condition of people with cognitive impairment (Hughes, 2003; Jennings, 2014).

From a research perspective, the QoL questionnaire can reflect the participants’ mental state and thinking pattern in a straightforward manner. Senior staff member at the Gibson Day Unit, Leonie shared her opinion: “The level of education and cognitive reserve affect how they assess their own well-being. Participant #14 (pseudonym) who used to be a teacher, obviously thinks more carefully [than others].” Her colleague Christine commented that the questionnaire was useful to learn about the perception of participants who hesitated to express their feelings openly. She said, “They [participants in Group 1] don’t like to offend people…they try to be nice and polite…they will be less likely to be brutally honest. It is hard for them to reflect accurately [verbally].” Participant #3 (mid-70s, Group 1) expressed her frustration: “I’m confused. This form [the questionnaire] has nothing to do with your dance! I don’t feel well but I enjoy the dancing and music very much!” As is apparent in the general lower Quality of Life results of Group 1 (Mild to Moderate Dementia), whose cognitive decline was less than that of the other two groups, the participants were able to separate the enjoyment of dancing from their real-life situation.
Some of my co-workers were not trusting the accuracy of the outcome of the questionnaire in cases where the participants’ impatience and less careful consideration was evident. In session 7, Participant #15 (early 80s, Group 2) showed her dismay in completing the questionnaire—“It’s stupid!”—and quickly ticked a ‘5’ after all statements as she always did. Leonie said, “I don’t believe they [the participants] really understand what they are actually indicating.” Her colleague Denise agreed and added, “Some of them ticked the highest scores because it was the easiest one to choose.” The comments above specifically apply to the participants in Group 2 (Moderate Dementia) who frequently rated their Quality of Life with full marks. However, senior activity co-ordinator at the Enliven St Andrews Care Home, Sue suggested that on this matter we have to ‘accept whatever it is’—“I think it’s as accurate as you can get. [Because] We know these residents really well, we work with them daily.” By saying that, the high self-rated Quality of Life of some participants can also be interpreted as their instant reaction immediately after the IMR session—they were informed by their feeling of joy and responded accordingly.

During the process of data collection, I observed that a number of participants, mostly from Group 3 (Advanced Dementia-D4), struggled to understand the statements and in making decisions. On such occasions, verbal assistance was offered; however, uncertainty about their comprehension of the questionnaire remains unavoidable. Each week, my co-workers at the care home explained the meaning of the individual statement to the participants in a more straightforward way. For instance, statement 5—‘My daily life has been filled with things that interest me’—was converted into ‘Is your life interesting?’ to meet the level of some participants’ understanding. Senior activity co-ordinator at the Enliven St Andrews Care Home, Mary said, “We help them [participants in Group 3] to understand …but how much they understand the statements depends on their mood [mental condition] of the day.” Volunteer Angeline suggested, “A simplified questionnaire with more comprehensible statements and three boxes
[in the scale] might be more effective and easier for them [people with dementia].” Therefore, the question of whether the questionnaire statements have genuinely investigated the participants’ Quality of Life needs further consideration and examination. A more simplified questionnaire specifically designed for people with dementia may potentially be more efficient.

Despite the controversial issues above, it is of paramount importance to declare that, the research analysis was made on the grounds that each of the participants understood the statements of the WHO-5 to the best of their ability and personal understanding. Healthcare researchers Birt et al (2017) remark, ‘Being central to decision-making, however minor that decision may be, and being offered subtle support to enable purposeful contribution to the decisions, were all acknowledged as important, especially as people recognized their changing cognitive abilities” (p. 206). Ultimately, the statistical results of Quality of Life were produced entirely by drawing on the participants’ contributions while their personhood and right of decision-making were advocated (Hughes, 2003; Jennings, 2014; Birt et al, 2017). No external interference existed in the scenario where verbal assistance and interpreted explanations were offered.
6. Further Suggestions:

Dancing More with Dementia

In this chapter, I present recommendations for future study regarding the program modifications, facilitation approach and overall research design.

6.1 Suggested Modifications to the IMR Program (All Study Groups)

6.1.1 Individual Routines

I. Movement Patterning:
Group 1 & 2: A series of easier warm up exercises is suggested before attempting the IMR routine. A fortnightly session is suggested to accommodate the participants’ ability (and possibly lack of interest) in performing this routine resulted by their declined short-term memory capacity.

Group 3: The IMR routine is deemed unsuitable for this group.

II. Synchronize-with-the-Music (Pitch)
Group 1 & 2: An introductory exercise using ascending and descending scales is suggested before attempting this routine.

Group 3: The IMR routine is deemed unsuitable for this group.
III. Synchronize-with-the-Music (Tempo)

All groups: More spontaneous free movement exploration is suggested.

IV. Move-and-Pause

All groups: More movement exploration along with interactive activities with peers are suggested.

V. Contrasting-Movement

Group 1 & 2: Contrasting of peer movement (the opposite of mirroring) can be incorporated.

Group 3: The IMR routine is deemed unsuitable for this group.

VI. Themed Improvisation

All groups: More thematic creative exploration and stories are recommended such as imagery, interaction with peers and props.

6.1.2 Music

Tunes that cater specifically to the average age range of the group are recommended. A survey of their musical preferences should be attempted before the research practice.

6.1.3 Length & Continuity of the Program

Group 1 & 2: According to the statistical and qualitative results, an interval of three weeks between the five weekly sessions is suggested.
Group 3: The program shall be provided on a continuous weekly basis.

6.1.4 Miscellaneous

Group 1 & 2: Simple exercises that allow the participants to follow along are suggested between and as part of the IMR dance routines. According to the information provided by staff at the GDU, the participants’ interest waned when the sessions were too repetitive in content. Hence, a constantly changing program is recommended.

Group 3: The singing session is suggested to continue since it worked effectively to lift the mood of this group of people. Also, simple exercises that allow the participants to follow along are suggested between and as part of the IMR dance routines. More movement demonstrations and verbal support are essential to maintain the participants’ motivation.
6.2 Approach to Facilitation

Teaching dance to people with dementia requires that the facilitator has an adequate knowledge of dementia care in order to respond to their immediate needs. A veteran dance facilitator in clinical institutions, Zeindlinger (2014) asserts that:

[T]he main factor to support someone [vulnerable people] in their wellbeing is to devote time, to be with him/her and let them be, not to correct them all the time, and to respect them, although they might eat tissue paper or tell you that they are friends with Elvis Presley (p. 28).

My future research will address the aforementioned issues regarding both the course content and the facilitation style in order to embody the ideology of a socio-ecological philosophy, which supports both the personhood and agency of vulnerable people. As well as the engagement of playfulness and humour, an appropriate degree of freedom that values intuition, creativity, communication and social interaction, will provide some degree of autonomy for people with dementia who are being denied their decision-making ability as they deteriorate (Boyle, 2014; Lem, 2015). I suggest that such an approach will foster their roles as Active Citizens\(^3\), rather than ‘passive receivers’ of information and commands (Birt et al, 2017).

---

\(^3\)Active Citizenship, as emphasized by healthcare researchers Birt et al (2017), can be “articulating and defending positive accounts of living well, engaging in loving relationships, preserving identity and self, and living as recognised citizens in their [people with dementia] communities” (p. 205).
6.3 Research Design

As mentioned in the Results chapter (p. 90), the data collecting activity exercised at the Enliven St Andrews Care Home was considerably affected by unforeseen organizational issues resulting in an inconsistent report regarding how the participants in Group 3 responded to the IMR sessions. In this scenario, improved organization and extra assistance from the carers is deemed essential if consistent results are to be achieved. This suggestion also applies to the outpatients of the Gibson Day Unit, whose family members’ opinion was excluded from the data coverage. In fact, close engagement with the carers and family members is pivotal to collecting extensive qualitative data such as, any change in the participants’ mood and behaviour before and after a session.

As discussed in the Limitations section (p. 71), the statistical and the qualitative analysis of all study groups did not produce generalisable results due to the small sample size and limited timeline. Hence, in order to potential achieve significant statistical results and robust empirical evidence, a larger Randomised Controlled Trial (RCT) is recommended. RCT is the most rigorous and objective methodological design for evaluating therapeutic outcomes (Kendall et al, 2013). This would comprise a group comparison design in which the participants are randomly assigned to treatment conditions. Based on the scoring patterns of all study groups (p. 81) where different degrees of improvement were found in Group 2 and 3, the recommended RCT shall focus on participants with moderate and advanced dementia. The control groups will be matched for dementia severity. A minimum number of eight to twelve participants in each group is recommended in order to maintain the group energy and engagement. Referring to the results of the published literature, a total of twenty weeks for each intervention (2 arms of 5-week intervention–3-week interval–5-week intervention) is suggested (Hamil et al, 2011; Lem, 2015; Rehfeld et al, 2017).
Afterword:

“When will we have the music and dance again?” a resident from the Enliven St Andrews Care Home inquired to my colleague Mary at the end of the last session. In that moment, I realised that this research has achieved far more than I had first expected. Through creating these unique experiences and nurturing the enjoyment and laughter among us, music and dance have tied everyone together physically and emotionally. Dunedin has become my new home and the participants are now my good friends.

In the film *The Sound of Music* (1956), the von Trapp children and Maria help to overcome adversity by musically recalling their favourite things:

- When the dog bites
- When the bee stings
- When I’m feeling sad

I simply remember my favourite things

And then I don’t feel so bad

By stimulating their recall of former familiar activities through music and dance, my IMR program hopes to achieve the same happy reminders of Home for those suffering from the onset of dementia.
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Appendices

Appendix I

WHO (Five) Well-Being Index (1998 version)

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being.

Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 in the upper right corner.

<table>
<thead>
<tr>
<th>Over the last two weeks</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>More than half of the time</th>
<th>Less than half of the time</th>
<th>Some of the time</th>
<th>At no time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I have felt cheerful and in good spirits</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2 I have felt calm and relaxed</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<tr>
<td>3 I have felt active and vigorous</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4 I woke up feeling fresh and rested</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5 My daily life has been filled with things that interest me</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Scoring:

The raw score is calculated by totalling the figures of the five answers. The raw score ranges from 0 to 25, 0 representing worst possible and 25 representing best possible quality of life.

To obtain a percentage score ranging from 0 to 100, the raw score is multiplied by 4. A percentage score of 0 represents worst possible, whereas a score of 100 represents best possible quality of life.

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Appendix II

TO WHOM IT MAY CONCERN:

Reference – Choo Ting

29 November 2017

Ting has asked me to provide a reference for her. I am delighted to be able to accommodate this request.

Ting joined our volunteer team here at Enliven St Andrew’s at the end of July 2017. She answered our plea for someone to entertain our residents through playing the piano.

This is an aged residential facility with hospital and dementia level care.

Ting has visited weekly to play the piano in both units when there is a gap in our programme. Her piano playing brings great joy to our residents and they respond to her skill with enthusiasm.

Ting has also undertaken a project for her study which was to create dance works by utilizing the piano playing as an observational tool. We were thrilled to be able to accommodate this project for Ting as her input is greatly valued. Ting has further requested to further her research here and we are more than happy for her to continue with this project.

St Andrew’s is a better place for Ting’s involvement. Good communication, honesty, empathy, reliability and compassion are attributes worthy of note.

We wish Ting all the best for her future.

Sincerely

Sue Lousley
Volunteer Coordinator
Appendix III

Ms A East  
School of Physical Education, Sport and Exercise Sciences  
Division of Sciences  
46 Union Street West

31 January 2018

Dear Ms East,

I am again writing to you concerning your proposal entitled ‘The Sound of Music: Bring Dementia Patients Home through Music and Dance’, Ethics Committee reference number H17/153.

Thank you to Ting Choo, student investigator on the above project, for her email of 30th January 2018 with response attached addressing the issues raised by the Committee.

On the basis of this response, I am pleased to confirm that the proposal now has full ethical approval to proceed.

While approving the study, the Committee suggests that you reword the Information Sheet using language that would be understandable to a person who has no experience in the field of study. If changes are made, please provide a revised version for the Committee’s records.

Approval is for up to three years from the date of this letter. If this project has not been completed within three years from the date of this letter, re-approval must be requested. If the nature, consent, location, procedures or personnel of your approved application change, please advise me in writing.

Upon approval, it is expected that all members of the research team are made aware of what the standard conditions of ethical approval covers. This includes the date ethical approval expires, as well as the process regarding applying for amendments to the research.

The Human Ethics Committee asks for a Final Report to be provided upon completion of the study. The Final Report template can be found on the Human Ethics Web Page.

http://www.otago.ac.nz/council/committees/committees/HumanEthicsCommittees.html
Yours sincerely,

[Signature]

Mr Gary Witte
Manager, Academic Committees
Tel: 479 8256
Email: gary.witte@otago.ac.nz

c.c. Assoc. Prof. C Button  Dean  School of Physical Education, Sport and Exercise Sciences
Tuesday, 05 December 2017.

Ms Alison East,
School of Physical Education,
DUNEDIN.

Tēnā Koe Ms Alison East,

The Sound of Music: Bring Dementia Patients through Music and Dance

The Ngāi Tahu Research Consultation Committee (the committee) met on Tuesday, 05 December 2017 to discuss your research proposition.

By way of introduction, this response from The Committee is provided as part of the Memorandum of Understanding between Te Rūnanga o Ngāi Tahu and the University. In the statement of principles of the memorandum it states "Ngāi Tahu acknowledges that the consultation process outlined in this policy provides no power of veto by Ngāi Tahu to research undertaken at the University of Otago". As such, this response is not "approval" or "mandate" for the research, rather it is a mandated response from a Ngāi Tahu appointed committee. This process is part of a number of requirements for researchers to undertake and does not cover other issues relating to ethics, including methodology they are separate requirements with other committees, for example the Human Ethics Committee, etc.

Within the context of the Policy for Research Consultation with Māori, the Committee base consultation on that defined by Justice McGechan:

"Consultation does not mean negotiation or agreement. It means: setting out a proposal not fully decided upon; adequately informing a party about relevant information upon which the proposal is based; listening to what the others have to say with an open mind (in that there is room to be persuaded against the proposal); undertaking that task in a genuine and not cosmetic manner. Reaching a decision that may or may not alter the original proposal."

The Committee considers the research to be of interest and importance.

As this study involves human participants, the Committee strongly encourage that ethnicity data be collected as part of the research project as a right to express their self-identity. That is the questions on self-identified ethnicity and descent, these questions are contained in the latest census.

The Committee suggests dissemination of the research findings to Māori health organisations regarding this study.

The Ngāi Tahu Research Consultation Committee has membership from:

Te Rūnanga o Okaihau Incorporated
Kāti Huirapa Kirika ki Pukekohe
Te Rūnanga o Moeraki
We wish you every success in your research and the committee also requests a copy of the research findings.

This letter of suggestion, recommendation and advice is current for an 18 month period from Tuesday, 05 December 2017 to 5 June 2019.

Nīhau noa, nā

Mark Brunton
Kawhakahihere Rangahau Māori
Research Manager Māori
Research Division
Te Whare Wānanga o Otago
Ph: +64 3 479 8738
Email: mark.brunton@otago.ac.nz
Web: www.otago.ac.nz
Appendix V

Health Research South

12/03/2018

Assoc Prof Yoram Barak
Psychogeriatrics Service, Psych Med.

Dear Yoram

SUBJECT: The sound of music: Dementia patients' home through music and dance.

This letter is to confirm that Health Research South has granted Locality Authorisation, allowing you to proceed with the above mentioned project.

According to our records:
This project is due to commence on: 12/03/2018

It is anticipated that this project will be completed by: 31/12/2019

Please note that we would appreciate receiving a copy of your final report to the Ethics Committee once your project is completed.

If you have any questions with regards to this process, please contact Health Research South, quoting the project ID number shown above.

Yours sincerely

Ruth Sharpe
CLINICAL RESEARCH ADVISOR

c.c. LOUISE TRAVERS, SOUTHERN DHB
TING CHOO, SCHOOL OF PHYSICAL EDUCATION, UoO

Health Research South, PO Box 56, Dunedin 9054
hrs@otago.ac.nz; www.otago.ac.nz/hr

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Evaluation of Participants’ Independent Performance:

Group 1-Mild to Moderate Dementia
(early 60s to mid-80s)

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<tr>
<th>Date</th>
<th>Movement Patterning</th>
<th>Synchronize-with-the Music (Pitch)</th>
<th>Synchronize-with-the Music (Tempo)</th>
<th>Move-and-Pause</th>
<th>Contrasting Movement</th>
<th>Themed Improvisation</th>
<th>Total Score</th>
<th>Number of Routines</th>
<th>Average Score</th>
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<td>3</td>
<td>5</td>
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<td>Session 2: 29 March</td>
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<td>Session 9: 17 May</td>
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</table>
## Evaluation of Participants’ Independent Performance:

### Group 2-Moderate Dementia

(late 60s to mid-80s)

<table>
<thead>
<tr>
<th>Date</th>
<th>Movement Patterning</th>
<th>Synchronize-with-the Music (Pitch)</th>
<th>Synchronize-with-the Music (Tempo)</th>
<th>Move-and-Pause</th>
<th>Contrasting Movement</th>
<th>Themed Improvisation</th>
<th>Total Score</th>
<th>Number of Routines</th>
<th>Average Score</th>
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<tbody>
<tr>
<td>Session 1: 21 March</td>
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<td>Session 8: 16 May</td>
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<td>Session 9: 23 May</td>
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</table>
Evaluation of Participants’ Independent Performance:

Group 3-Advanced Dementia (D4)
(early 80s to mid-90s)

<table>
<thead>
<tr>
<th>Date</th>
<th>Movement Patterning</th>
<th>Synchronize with-the Music (Pitch)</th>
<th>Synchronize with-the Music (Tempo)</th>
<th>Move- and Pause</th>
<th>Contrasting Movement</th>
<th>Themed Improvisation</th>
<th>Total Score</th>
<th>Number of Routines</th>
<th>Average Score</th>
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<tbody>
<tr>
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Thematic Analysis of IMR Practicum:
Group 1-Mild to Moderate Dementia (early 60s to mid-80s)

<table>
<thead>
<tr>
<th>Date</th>
<th>Memory Recollection</th>
<th>Social Interaction</th>
<th>Enjoyment</th>
</tr>
</thead>
</table>
| Session 1 22 March | Participant #3 recalled about her making nappies for my babies back in the 70’s.  
Participant #3’s recollection about Australians during the marching exercise. | Discussion about participant #3’s musical preference. | Participant #5 and #8 reflected “it was fun.” |
| Session 2 29 March | Participant #3 recalled about her making nappies for my babies back in the 70’s.  
Participant #3’s recollection about Australians during the marching exercise. | Discussion about the laundry experience.  
Participant #3: “I felt it (the exercise) stimulated my brain!”  
Participant #2: “It’s the concentration that exercised our brains!” | Participant #11: “it was lovely!”  
Participant #10, #12 and #13: “Thank you, it was great!” |
| Session 3 4 April | Memory recollection about the laundry.  
Participant #3 connected the ‘cake baking’ of last week to the birthday party held at the previous night. | Discussion about the laundry experience.  
Participant #3: “I felt it (the exercise) stimulated my brain!”  
Participant #2: “It’s the concentration that exercised our brains!” | Participant #2 showed ‘thumb up’ at the end of the session.  
Participant #3: “Please come next time.” |
| Session 4 12 April | Participant #1 recalled about her mom punishing her to do the chores when she bullied her sister, and that she used to do the house chores for the whole family. | The participants enjoyed the ‘passing ball’ game very much. | Participant #2: “I’ve never done this before, I must show him (her husband) today!”  
Participant #3: “the exercises are very good. My arms and legs are warm now!” |
| Session 5 19 April | Participant #5 told she used to be very good in netball. | The participants enjoyed the ‘passing ball’ game very much. | Participant #4 said, “Thank you very much, love!” |
| Session 6 26 April | Participant #1 expressed how she used to be afraid of marching at senior school.  
Participants #3 and #4 talked about the senior marching competition (for 60’s and above) in Dunedin and tai-chi.  
Participant #1 recalled about her university studies.  
Participant #7 remembered the ‘baking cake’ dance of the first two sessions.  
| The ‘passing ball’ game of Themed Improvisation was done with lots of imaginations and actions.  
Discussions about marching and the university were elaborated. | Participant #2 checked on how many sessions left; she said ‘thank you’ and shook my hand before leaving for lunch.  
Participant #2 remarked the Pause-with-the-Music really worked her concentration very well. |Participant #2 remarked the Pause-with-the-Music really worked her concentration very well. |
| Session 7 3 May | We had a little chat about the war and submarine. Participant #2, #3 and #4 expressed negative opinions about the war.  
| Participant #3 talked about Participant #4’s husband who plays bass drum.  
The ‘passing bubble and rock’ interaction was well done. | Participant #1, #2, #3, #4 and #8 played with the ‘awkward poses’ enjoyably.  
Participant #3 said, “I love this, it’s so much better than the bloody exercise we do in the afternoon! We do the bloody
Participant #1 recalled about her uncle who joined the military back in the 1970’s. Participant #1 commented the exercise Synchronize-with-the-Music (Pitch) like walking up and down the staircase: “In the past I had to walk up to the 8th floor [of the school building]!”

Discussion about the ‘afternoon bloody exercises’ and how they don’t appreciate the chocolate treats!

laundry too [in the afternoon] but I like the one in your session.”

<table>
<thead>
<tr>
<th>Session 8</th>
<th>10 May</th>
<th>The passing of ‘bubble and rock’ interaction was done with laughter and giggles. Participant #2 jokingly sang: “We’re bored!” after a few practices in the exercise Contrasting Movement.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Participant #2: “I do this [the exercises] at home too!”</td>
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<tr>
<td></td>
<td></td>
<td>Participant #3: “I played the bubbles and rocks with my grandchildren and they loved that!”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 9</th>
<th>17 May</th>
<th>The ‘passing wind’ in Themed Improvisation generated an ‘invisible interaction’. A discussion about their musical preference was conducted. Rather than the folk songs, all of them preferred songs from the 60s onwards. Participant #3: “John Brown’s Body is depressing!”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Giggles and laughter were observed during the routine Themed Improvisation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 10</th>
<th>24 May</th>
<th>Discussion about the Swedish Band ‘Abba’ after the tune <em>The Winner Takes It All</em>. Discussion about past stories after Participant #2 talked about her granddaughter. Lots of chit chats during and after the session.</th>
</tr>
</thead>
<tbody>
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### Thematic Analysis of IMR Practicum:

#### Group 2-Moderate Dementia (late 60s to mid-80s)

<table>
<thead>
<tr>
<th>Date</th>
<th>Memory Recollection</th>
<th>Social Interaction</th>
<th>Enjoyment</th>
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<tbody>
<tr>
<td><strong>Session 1</strong></td>
<td></td>
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<tr>
<td>21 March</td>
<td>Participant #12 recalled of his friend who used to work in a ‘freezing butchery’ before Move-and-Pause.</td>
<td>Participant #13 and #14 did an improvisation duet and made everyone laugh.</td>
<td>The male participants joked around all the time.</td>
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<tr>
<td></td>
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<td>Staff feedback: “Participants #13, #14, #15 and #16 enjoyed very much.”</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Participant #13 said, “Bloody love that!”</td>
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<tr>
<td><strong>Session 2</strong></td>
<td></td>
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<tr>
<td>28 March</td>
<td>Memory recollection about the school dance when they were school kids.</td>
<td>Discussion about the social dancing.</td>
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<tr>
<td></td>
<td>Participant #13 recalled she used to play piano.</td>
<td>Participant #12 and #14 ‘mess ed up’ each other’s laundry because they couldn’t do it well.</td>
<td>Participant #10: “Quite good actually!”</td>
</tr>
<tr>
<td></td>
<td>Participant #12: “I used to have a piano…you lose everything when you’re getting old!”</td>
<td>Participant #12 suggested us to ‘take the clothes off’ for the laundry.</td>
<td>Participant #15: “I love the dance!”</td>
</tr>
<tr>
<td><strong>Session 3</strong></td>
<td></td>
<td></td>
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<tr>
<td>4 April</td>
<td>Participant #11 recalled her husband did the house work when she couldn’t. Her daughter did the weekly washing.</td>
<td>Discussion about the roles of men and women on the laundry duty.</td>
<td>Everyone smiled throughout the session.</td>
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<tr>
<td></td>
<td></td>
<td>Participant #11 asked if I needed a laundry job.</td>
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<tr>
<td></td>
<td></td>
<td>Participant #14 reminded me to wash the pyjamas.</td>
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<tr>
<td><strong>Session 4</strong></td>
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<tr>
<td>11 April</td>
<td>Participant #14 recalled something about rugby.</td>
<td>Discussion about rugby.</td>
<td>Everyone (except participant #11) smiled throughout the session.</td>
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<tr>
<td></td>
<td></td>
<td>Participant #14 asked if he could refreeze jokingly.</td>
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<tr>
<td><strong>Session 5</strong></td>
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<tr>
<td>18 April</td>
<td>Participant #14 recalled: “I used to attend the ‘Christian Brothers’ school…I was locked down very often.”</td>
<td>The participants spontaneously sang ‘She’ll be riding the horses when she comes’ after the singing session.</td>
<td>Everyone smiled throughout the session and often made fun.</td>
</tr>
<tr>
<td></td>
<td>Participant #10 remembered he put full scores in the questionnaire last week.</td>
<td>Spontaneous circle dancing after the dancing session.</td>
<td>Participant #14 created funnier versions of movement for Movement Patterning; and funny poses for Move-and-Pause.</td>
</tr>
<tr>
<td><strong>Session 6</strong></td>
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<tr>
<td>2 May</td>
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<tr>
<td>Session 7</td>
<td>9 May</td>
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<tr>
<td>Participant #12 said about <em>Auld Lang Syne</em>: “It’s a very old song… but very difficult to remember!”</td>
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<tr>
<td>Participant #13 and #14 did an improvisation duet spontaneously during the Themed Improvisation routine. The dancing ended with the ‘catholic pose’ on their knees. Participant #13 joked about the pose.</td>
<td></td>
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<tr>
<td>Almost all participants showed a great sense of humour in the Move-and-Pause and Themed Improvisation routines.</td>
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<tr>
<td>Improvised movements were spontaneously created in Movement Patterning.</td>
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<tr>
<td>Participant #12 dropped the ‘rock’ extremely slowly and ‘seriously’.</td>
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</table>

<table>
<thead>
<tr>
<th>Session 8</th>
<th>16 May</th>
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<tbody>
<tr>
<td>All participants sang other songs spontaneously after the singing session.</td>
<td></td>
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<tr>
<td>A few brief conversations were initiated but not developed.</td>
<td></td>
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<tr>
<td>Sense of humour and playfulness were evident when they could pose ‘funnily’ and played around with the ‘bubble’ and ‘rock’.</td>
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<tr>
<td>Participant #12 enjoyed posing like a ‘zombie’.</td>
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<table>
<thead>
<tr>
<th>Session 9</th>
<th>23 May</th>
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<tbody>
<tr>
<td>Participant #12 and #13 joked about <em>Saturday Night Fever</em> while the ‘disco’ idea was incorporated in Move-and-Pause. Participant #13 told stories about the school and activities he used to do with friends back then, such as surfing at the St Clair beach.</td>
<td></td>
</tr>
<tr>
<td>The participants interacted a lot in Synchronize-with-the-Music (Pitch) when the ‘rippling fabric’ was used. The participants interacted more when they got to hold hands during the ‘walk’ in Synchronize-with-the-Music (Tempo).</td>
<td></td>
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<tr>
<td>‘Passing wind’ stimulated humorous gestures and laughter. The group energy picked up as the program was re-structured with new elements. The participants were enlivened and became chattier after the session.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Session 10</th>
<th>30 May</th>
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<tbody>
<tr>
<td>While doing the Contrasting Movement, Participant #12 said the hand gestures (pointing right and left) felt like the ‘offside’ command in rugby.</td>
<td></td>
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<tr>
<td>Spontaneous singing and dancing after the session. ‘Passing movement’ was done with fun interaction and laughter. Participant #7 joking said he was cleaning the shoes when we were doing hand movement in lower level. Participant #12 sang ‘Tomorrow’ when the song <em>Yesterday</em> was played.</td>
<td></td>
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<tr>
<td>Smiles and laughter were often observed throughout the session.</td>
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# Thematic Analysis of IMR Practicum:

## Group 3–Advanced Dementia (D4) (early 80s to mid-90s)

<table>
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<tr>
<th>Date</th>
<th>Memory Recollection</th>
<th>Social Interaction</th>
<th>Enjoyment</th>
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<tbody>
<tr>
<td>Session 1 10 March</td>
<td></td>
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<tr>
<td>Session 2 17 March</td>
<td></td>
<td>Participants talked with each other after the singing session.</td>
<td></td>
</tr>
<tr>
<td>Session 3 24 March</td>
<td></td>
<td>Sue feedback the participants interacted with each other alongside the music and movement.</td>
<td></td>
</tr>
<tr>
<td>Session 4 31 March</td>
<td></td>
<td></td>
<td>Mary reflected: “Although most of them cannot perform the exercises very well, I could see they enjoyed the session very much from their faces.”</td>
</tr>
<tr>
<td>Session 5 7 April</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Session 6 14 April</td>
<td></td>
<td></td>
<td>Angeline feedback that Participant #20’s mood has been improving over the weeks.</td>
</tr>
<tr>
<td>Session 7 21 April</td>
<td>Participant #26 recalled a tragedy during the war: “I had very a bad experience in the war…the submarine is very dangerous!” after the tune Yellow Submarine was played.</td>
<td>Almost all of them engaged with the ‘ball passing’ very well, good interaction with each other.</td>
<td>Lots of laughter and smiles in the Move-and-Pause exercise.</td>
</tr>
<tr>
<td>Session 8 28 April</td>
<td>Participant #26 recalled about how she hated the submarine again.</td>
<td>Some of them have started to open up to each other and interacted before the session.</td>
<td>Participant #18 showed her ‘frustrations’ over the repetitive music pauses with funny face: “URGH!!!!”</td>
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<td>Session 9 5 May</td>
<td>Almost all of them engaged with the ‘bubble &amp; rock’ passing very well, good interaction with each other. Lots of laughter especially when passing the ‘rock’.</td>
<td></td>
<td>Lots of laughter and smiles when ‘awkward’ poses were produced during the Move-and-Pause routine. Angeline remarked on the improvement of Participant #20 whose condition is deteriorating very quickly: “She stepped in The Chapel [the activity area] with very bad mood. After the session, she has obviously become very happy!”</td>
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| Session 10 | 12 May | Participant #22 said, “*John Brown’s Body* is about the war.”
The participants chatted with each other before the session.
Good group interaction in Themed Improvisation. | Participant #20 was happy when we practiced the ‘posing’ before the music: “I can do that!”
Mary told how she received the enjoyment sign: “You can see the sparks in their eyes.” |