ADULT MUSIC STUDENTS IN A NORTH AUSTRALIAN REGIONAL COMMUNITY: MOTIVATIONS FOR LEARNING A MUSICAL INSTRUMENT, PERCEIVED BENEFITS AND PEDAGOGICAL CONSIDERATIONS

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THESIS DECLARATION

I hereby declare that the work entitled

"*Adult music students in a North Australian regional community: motivations for learning a musical instrument, perceived benefits and pedagogical considerations*"

to the best of my knowledge and belief, now submitted as a thesis for the degree of Master by Research of the Charles Darwin University, is the result of my own research, and all references to ideas and work of other researchers have been duly acknowledged.

I hereby certify that the work has not been submitted for a degree to any other university or institution.

Name: Kathryn Hui TAN

……

Date:

DEDICATION

To the memory of my mother, **Song** Chai Suan (1938-2010) whose love of singing filled our home and hearts with music.

To the memory of my father, **Tan** Seng Lim (1929-1996) who instilled in me an appreciation of music and gave me an opportunity to pursue my studies in Sydney, Australia. Seng Lim was a mature-aged student; he was in his late 40s when he learnt to play the Gu Zheng, a Chinese traditional instrument dating to the Qin Dynasty. He gave many performances on the instrument and later became a teacher when he retired. My father's motivation was to fulfil a lifelong desire to play the Gu Zheng and an appreciation of Chinese classical music.

ACKNOWLEDGEMENT

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I would like to acknowledge the award of a Fellowship in 2012 from the Winston Churchill Memorial Fellowship Trust of Australia. The opportunity to travel to the USA and study with Barbara Lister-Sink has piqued my interest in injury-preventive keyboard technique and performing arts healthcare.

My final thanks go to my partner Ken Kirkman for his unwavering support and for proof-reading my manuscript.

Throughout the course of my study, I appreciated the fact that undertaking research is a process that is continually evolving. This project had several starts

and pauses but I am thankful to have come to the end of the course and learnt valuable skills along the way.

ABSTRACT

This research investigated the factors that motivate adult music students, the benefits they have derived from engaging in music learning and practice, and whether the outcomes include a better awareness of self, posture and body use. Participants who responded to an online questionnaire and semi-structured interviews were drawn from local music organisations in Darwin, Northern Territory, Australia. Among the range of motivating factors reported were personal satisfaction, desire to maintain physical and cognitive well-being, need for relaxation and social interaction. Closely linked to these reasons were the beneficial outcomes in terms of an improved sense of self-esteem, spiritual, cognitive and health benefits and overall well-being. A significant finding was that participants were aware of their body use in playing an instrument or singing but felt their movements were not well-coordinated. From a pedagogical perspective, the results of the study suggest that music students may benefit from being trained to apply kinaesthetic awareness in their practice and performance that would also incorporate proper body alignment and coordination. This knowledge may possibly help to make technique more sustainable and prevent injuries while students fulfil their other motivations for engaging in musical activities.

DEFINITION OF TERMS

Throughout this thesis I will be making references to a few terms that may need clarification. This section will provide an explanation to these terms.

Adult music students:

This term is used throughout the thesis to describe all participants who took part in the on-line survey and interviews. Included in this cohort are community musicians who are currently practising and learning in their playing environment.

Biomechanics:

The term 'biomechanics' is a combination of *bio*, meaning life and *mechanics*, the study of the action of forces (Hall, 2014). Therefore, biomechanics is the science of movement of a living body including how muscles, bones, tendons and ligaments work together to produce movement. Application of biomechanical principles to the way we play our instruments adds a dimension to our understanding of technique. By understanding how the body works best with the instrument, technique is therefore a skill that can be acquired (Lister-Sink, 2007) .

Body awareness:

I use this term to mean a sense of connection to our bodies in the way that we stand, move or sit. It is an awareness of what state our muscles are in at any time. Being able to sense if there is unnecessary tension that we are holding when we perform an activity allows us to release this strain on the body.

Body education:

Programs that teach body awareness include the Alexander Technique, Feldenkrais and Body Mapping. These three methods share similar goals that are training natural body alignment, balance and proper body use. The efficacy of these techniques is dependent on an acute kinaesthetic sense.

The Alexander Technique works by helping to identify and prevent harmful postural habits that may be the cause of stress and pain. It works on the principle that learning natural body alignment and movements can improve overall functioning and well-being. Based on the work of F. Matthias Alexander, this technique is widely used by musicians, singers, actors and dancers.

Moshe Feldenkrais developed a system of body-awareness and exercises for which he is known. The exercises are designed to improve posture, vision, imagination and personal awareness (Feldenkrais, 1990).

"Body Mapping is the conscious correction and refining of one's body map to produce efficient, graceful and coordinated movement"(Conable, 1998, p. 5). William Conable observed that students move in certain ways because of their perception of how they are structured (Conable, 1998). By correcting the Body Map, students can learn to move in a more efficient manner.

Efficient movement

This term refers to movement that is well-coordinated, free of unnecessary tension and based on an understanding of how the body is constructed and designed to move. As a result, the least amount of effort is used to produce the maximum result.

Fine motor control:

Fine motor control is defined as a "…motor skill that requires control of small muscles to achieve the goal of the skill; typically involves eye-hand coordination and requires a high degree of precision of hand and finger movement" (Magill & Anderson, 2014, p. 11). Furthermore, Schmidt and Lee (2011) state that these learned movements can only be acquired through intense practice over time. For the purpose of this research, the term 'fine motor control' will describe the capability associated with long periods of practice and repetition to allow skilled and coordinated movements.

The nervous system's control of the muscles permits these highly complex but fine-tuned movements to allow us to play a musical instrument, sing, grip a pen to write and do delicate embroidery.

Kinaesthetic perception:

The word 'kinaesthesia' comes from two Greek words: *kinema* and *aesthesia* - 'kinema' refers to motion and 'aesthesia' to perception. By combining these two words, the concept of the perception of motion is developed (Conable, 1998, p. 45). In its effect, kinaesthesia informs us whether our movements are easy, efficient and organised or whether we are moving in a rigid and stressful way.

In the learning of a musical instrument, the kinaesthetic sense can play an important part in the process. If students can sense the state of their muscles and the way they move, they will be able to organise their movements in a more efficient manner.

Well-coordinated movements contribute to a better performance outcome (Buchanan & Hays, 2014; Conable, 1998; Lister-Sink, 2005; Milanovic, 2014).

Performing arts:

Performing arts encompasses all activities concerned with music, dance and acting.

Performing arts healthcare and well-being:

Performers often experience extreme pressure and stress. The application of proper techniques for practice and performance is important in order to prevent performance related injuries. Hearing loss is also a major issue as well as depression and loss of self-esteem from the inability to perform due to pain.

Healthcare in the performing arts is an ongoing global concern as highlighted by the many organisations that have been established to deal with these issues. The well-being of performing artists is dependent on their access to appropriate information in the use and care of their bodies and to proper medical treatment when required.

Performing arts medicine:

The field of performing arts medicine started in the United States in the 1980s after hand problems encountered by two prominent pianists, Gary Graffman and Leon Fleisher were published in an article in the New York Times. This news led to other musicians who had suffered injuries coming forward with their enquiries about where to seek medical help.

The problems associated with repetitive stress injuries are common in the performance of a musical instrument, an action that requires continuous repetitive movements, sometimes at great speed. As explained by Ackermann (music physiotherapist),

> *"…most injuries occurring in musicians are directly related to the repetitive muscle use over many hours of daily training…"* (Ackermann, 2010, p. 247)

Musicians who suffer injuries as a consequence of their playing may benefit from having access to high quality holistic medical intervention. Healthcare professionals working specifically with performing artists would be able to provide such a service because they have an understanding of the specific needs and demands related to the industry.

A thorough and detailed examination of the patient, including an assessment of past and current playing techniques will inform the treatment procedures. Non-surgical intervention is the preferred option, so treatments will involve correcting faulty use of the playing mechanism – limbs, muscles, ligaments and joints. These therapeutic interventions require time, as the patients must undergo retraining in the use of appropriate movements specific to their needs.

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CHAPTER 1

INTRODUCTION

'Music in the soul can be heard by the Universe'

Lao Tzu (604-531BC)

Music touches the soul, can bring tears to our eyes and sometimes creates a sense of immense pleasure or nostalgia. The fact is that music plays an important part in human existence; we cannot live our lives and not have any interaction with some form of music. The late Karl Haas (pianist, conductor and radio presenter on ABC Classic FM) made a relevant point that "There are enough kinds of music to suit every taste, fill every need, match every mood, 'send us' in any particular direction" (Haas, 1984, p. 3).

It will be strongly supported in this thesis that engaging in music performance (instrumental or vocal) not only provides enjoyment, it also offers enormous benefits to the person engaged in the activity. There is a great deal of research that indicates that music stimulates the brain. There is extensive evidence that music can aid learning, assist in healing and that it mitigates certain neurological conditions, as well as enhances psychological well-being (Koelsch, 2013; Särkämö, Tervaniemi, & Huotilainen, 2013; Schulkin & Raglan, 2014; Thompson, 2015). Furthermore, Hallam and Creech (2016) concluded in their study on health and well-being in older citizens, active music making promotes:

a) Improved health;

b) Emotional and social well-being;

c) Cognitive benefits in the learning of new skills;

d) A sense of achievement and positive self-esteem.

Hays & Minichiello's study found that people aged sixty-five or older who engage in music-making reported enhanced physical and mental health, contributing to an improved quality of life (Hays & Minichiello, 2005). It is worth noting that choral singing has become a significant community activity as evidenced by numerous studies into the benefits of participation in singing (Clift & Hancox, 2010; Judd & Pooley, 2014). These researchers have concluded that choral singing contributed to the psychological, physical and social well-being of choir members.

In the twenty-first century, music therapy is widely used in clinical and rehabilitative settings to support patients to improve their health, functioning and well-being. Research has confirmed the positive effects of music on recovery of certain brain functions following stroke and in the treatment of autistic spectrum disorder (Schneider, Schonle, Altenmuller, & Munte, 2007; Thompson, 2015). Development in neuroscience has shown that the brain is capable of developing new neural pathways due to its ability to adapt to new patterns of thought and behaviour, hence the possibility of retraining the body. This prospect implies that it is never too late for the older generation to learn new skills such as playing a musical instrument or singing! Furthermore, reading music notation requires other skills; an activity that engages the brain in an additional manner to music performance and can also contribute to cognitive well-being.

The power of music extends further: used in palliative care, music provides comfort and peace to the dying and their families, a practice pioneered by T. Schroeder-Sheker (1993) in the United States of America (Lipe, 2002). It has been shown that when music is performed on harp and voice it can be matched to the tonal vibrations of the physiological changes and breathing patterns that occur in the dying process (Ganzini, Rakoski, Cohn, & Mularski, 2015). Further, studies from these researchers (Ganzini et al) and Murfin and Haberman (2007) have recorded positive feedback from family members who felt that music had helped them to deal with their bereavement.

1.1 BACKGROUND

I have been involved in music education, mainly as a teacher of piano, for the past nineteen years through my work at Charles Darwin University (CDU) and the Centre for Youth and Community Music (CYCM). I teach students of all ages, from beginners (young and old) to older adults who have played the piano throughout their lives. My interaction with mature-aged students made me realise how important music has become to this cohort.

The trend of recreational making of music at an older age has been noted in countries that are rated on the higher end of the socio-economic scale.

"As people are living longer and enjoying a better quality of life, there has been a corresponding increase in interest in recreational music making by adults"(Wristen, 2006, p. 387).

This trend extends to Australia where, according to the Australian Bureau of Statistics (ABS), Australia's population base is predicted to change substantially over the next fifty years; around one in every four Australians will be aged 65 years or older by the year 2056 (http://www.abs.gov.au).

Consequently, as people progress through their lives, they may find an opportunity that had never previously presented itself, to pursue some form of music-making. This musical activity may be joining a choir or learning to play an instrument. The pursuit of a musical activity in mature age may fulfil a life-long desire to realise a self-potential. So, this need may motivate mature adults to take up instrumental music lessons now that time and resources are available.

The cohort of adult music students (including participants who are currently practising and learning in their playing environment, as defined earlier), comprises individuals from very different backgrounds including retirees, houseparents, professional people, community workers, public servants, and business executives. They are all self-motivated because they are doing something for themselves, perhaps for their personal satisfaction or even just for the fun and enjoyment of the activity. By enjoyment and fun, I mean that, unlike a child learner, there is no pressure to sit examinations or having to live up to someone else's expectations.

Adult music students appreciate that music learning is a lifelong activity that can contribute to a better quality of life. Lifelong learning is a process that continues through the course of one's life; it may be in the form of professional training or a leisure-related activity such as music that contributes socially and culturally to a person's quality of life (Brown, 2000).

Moreover, personally I have always believed that it is never too late to learn to sing or play an instrument. Whilst one may not become a virtuoso, one can become an adequate and competent singer or player, performing for one's own enjoyment.

If exposed to the appropriate training that includes efficient use of the body, adult students can gain skills that allow for a well-coordinated and sustainable technique, one that enables them to play or sing with ease and comfort allowing them to maximise their potential. This knowledge is particularly significant for mature age students who may experience some discomfort in using their muscles and joints at the start of their training.

Is it possible then, to assume that learning to sing or play an instrument provides an opportunity to learn healthy body alignment and co-ordinations that can contribute to one's physical and emotional well-being? If we believe this is possible, then instrumental musical instruction may need to include body awareness programs like the Alexander Technique. This research proposes that there is a need to focus on teaching students to sense what they are physically doing besides concentrating on what notes to play or sing.

1.2 RESEARCH QUESTIONS

This research, partly in response to a recommendation put forward by Wristen (2006) is qualitative in its approach to establish what motivates mature adult students to take up music-making at this stage of their lives. This investigation seeks to extend on answers to the question: What are the motivations and needs of adult music learners? Closely linked to the subject of motivation are the perceived benefits derived from learning a musical instrument including the voice which is considered an instrument for the purposes of this research.

A sub question pertains to beneficial outcomes adult music students have experienced from engaging in music study. Do the benefits of engaging with music-making and learning include a better awareness of self, posture and body use? Another underlying issue I wish to ascertain from a pedagogical aspect is whether students access their kinaesthetic sense in learning and practising on their instruments including voice.

1.3 RESEARCH AIMS

My research therefore aims to investigate the following:

- factors that motivate adult students in the Northern Territory;
- beneficial outcomes that are perceived from engaging in music-making;
- the student's awareness of posture and body use in playing a musical instrument or singing.

1.4 SIGNIFICANCE

The significance of this research is that it will make an original contribution to the Centre for Youth and Community Music in Darwin primarily because no research on this topic has previously taken place on this cohort of students. Data obtained from this study may have implications for tutors. Working with mature-aged students requires flexibility at all levels because they have a different set of requirements, as Myers (1992) points out "The need for educators, including music educators, to serve adult learners better is becoming increasingly apparent" (Myers, p. 23). In support of this statement, Achilles (1992) suggests that tutors who have an understanding of all aspects of the adult student's development and needs can expect a more successful outcome. To cater to this potential cohort of mature-aged students, music providers may need to look at ways of addressing the learning requirements and demands that are different from a younger cohort of students. It would, therefore, be helpful for music institutions to have a profile of a potential student. This research aims to provide such a profile and give a perspective regarding the characteristics of adults who may enrol in music courses.

New paradigms for teaching may need to include educational programs that promote healthcare and well-being, taking into consideration the possibility that mature adults may experience less flexibility in their movements and coordination. Learning proper use of muscles and joints would result in better performance outcomes for these older students besides minimising stress on the body.

Therefore, it is reasonable to suggest that responsibility lies with the musical institution to provide training for their tutors to equip them with the essential knowledge and skills to instruct in a more holistic manner.

In addition, performance healthcare and well-being is now an ongoing global issue, one that deserves attention from music providers and organisations. Mind and body health programs would enhance the teaching and practice of music in any musical institution. The Australian National Academy of Music (ANAM) in Melbourne, Australia has embraced this approach by implementing health and well-being programs into the curriculum. In this present climate of performance related injuries, students of music need to have access to the appropriate information to avoid problems developing at the outset.

1.5 REGIONAL CONTEXT

Darwin, state capital of the Northern Territory, is situated on the north coast of the continent at the Timor Sea. The tropical climate is characterised by two distinct periods: Dry Season from April to September with clear blue skies and the Wet Season from November to March with high humidity levels and monsoonal rains. Cyclonic conditions also prevail during this Wet Season.

The population of Darwin is currently estimated at over 140,000 people and accounts for 0.6% of Australia's population. The multicultural community of Darwin is made up of diverse races and ethnic groups. Besides the indigenous and local population, Asian migrants include those from Vietnam, the Philippines, India and Indonesia. Greeks and Italians make up another section of the community.

Therefore, Darwin has a reputation of being a cosmopolitan city where many festivals are observed and cultural occasions such as the Greek Glenti and India@Mindil have become annual events on the NT calendar.

Darwin is characterised by its transient population. It is a fact of life that a number of people leave the Territory at the end of each year due to contracts or projects finishing, family reasons or for a change of lifestyle in another state or territory. At the same time, there would be an influx of new migrants to the Territory at the start of a new year. As a result of this phenomenon, there is a constant shift of music teachers, adult music students and young students moving with their families to and out of Darwin. According to statistics (Carson, 2016), growth in the NT has not kept up with out-migration and the local government has put in place strategies to attract interstate and overseas migrants (https://population.nt.gov.au/strategy).

Compared to other cities in Australia, Darwin is known to have a more relaxed lifestyle. Residents enjoy a host of recreational activities ranging from fishing, sailing, sports and camping besides music-making. Despite its small population, Darwin boasts a community symphony orchestra, several instrumental ensembles and various choral groups. The entertainment scene is well catered for by the Darwin Entertainment Centre, Brown's Mart Theatre, Corrugated Iron and Tracks Dance companies. The Darwin Festival is an annual event featuring art, music and dance and has become a drawcard for performers and visitors from other states and countries.

In terms of opportunities for learning and making music, the Centre for Youth and Community Music (an organisation discussed later in this thesis) continues to attract adult students to its instrumental, vocal and ensemble programs. Although music-making plays an important role in the Northern Territory, no research has been done to investigate the motivating factors and perceived benefits from engaging in this activity. My research aims to fill this gap.

1.6 LIMITATIONS

This research is limited to a small population because I am restricted by the population of Darwin (around 140,000), in the Northern Territory of Australia. As such, the findings will only reflect the experiences of this group of participants. I realise that I could extend the survey to other music institutions in Australia but under the advice of my Supervisor I have decided to focus on a smaller scale project. The other limitation is that the genre of music is restricted to western classical music and does not include music of other cultures or contemporary popular and rock music.

1.7 ETHICAL CONSIDERATIONS

In accordance with the National Statement on Ethical Conduct in Human Research (2007), I obtained ethics clearance before commencement of the survey. I have also acknowledged all references made in this thesis in accordance with CDU's anti-plagiarism, intellectual property and referencing policies.

1.8 OUTLINE OF THESIS

This thesis is organised into five chapters. Following the Introduction is the Literature Review, Chapter 2, presenting topics examined under these headings:

- Human motivation and psychology;
- Neuroscience and music;
- Benefits of learning and making music;
- Lifelong learning and creativity
- Kinaesthesia and its application in instrumental music teaching;
- New teaching paradigms that incorporate health and well-being;
- Performing arts healthcare and well-being.

Chapter 3 discusses the research design and gives an account of the methods applied, the selection and recruitment of participants, survey instruments used for data collection, limitations and reliability, ethical guidelines and procedures.

Chapter 4 presents findings in a descriptive and narrative format. Responses to open-ended questions in the questionnaire and insights from the interviews are included verbatim. Chapter 5 discusses the significance of the findings; it draws together outcomes from the research data and literature review as evidence for the basis of the research questions and objectives. The final chapter concludes with recommendation for further research and a list of recommendation for music providers.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The subject of adult music learners is an area that continues to receive much attention (Bowles, 1991; Bugos, 2014; Forrester, 1975; Johnson, 1996; Perkins & Williamon, 2014; Rohwer, 2005). Typically, research on adult music students has centred on the major aspects of their motivation for engaging in the musical activity and the perceived outcomes experienced (Brown, 2000; Dawson, 2014; Hallam, 2002; Hays & Minichiello, 2005; Johnson, 1996; Wristen, 2006). These two themes provide the basis for my project from which data can be gathered to create a profile of the potential adult student. Literature pertaining to adult music education strongly suggests that the number of adults taking up a musical instrument has increased in recent years ((Bowles; Roberts, 1967; Taylor, 2011; Wristen, 2006).

The aim of this literature review is to establish what other researchers have proposed regarding the afore-mentioned, as well as to examine the motivations of adult students and apparent benefits derived from this activity. Sources used for this review included books and journals concerned with music education, psychology and physiology; conference publications, theses, newspaper articles and the Internet. The articles reviewed contained materials that were pertinent to my research questions and have been categorised into subheadings presented in Chapter 1.

2.2 HUMAN MOTIVATION AND PSYCHOLOGY

> *A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy. What a man can be, he must be. This need we may call self-actualization. (Maslow, 1943, p. 82)*

In his landmark article, American psychotherapist Maslow identified basic human needs and other desires that were arranged according to a hierarchy. The different levels of needs are represented by a pyramid at the top of which is the need for self-actualisation (a term first used by Kurt Goldstein according to Maslow) or the need to fulfil one's potentialities as described later by Bernard-Lovell (1986). According to Maslow, an individual can only attend to this self-need after satisfaction of other basic needs in the lower level of order. This conclusion is warranted by the information gathered from my survey where mature-aged (retirees) cohort, who having satisfied their basic needs during the course of their working lives can now realise their desires to fulfil a lifelong ambition to play a musical instrument of their choice.

On human motivation, other authors have maintained that motivation is associated with a desire to perform certain actions initiated by a sense of need. Green (1995, p. 90) reiterated

> *…motivated behaviour must begin with some situation or condition that requires the person to adopt a goal*.

Green also put forward another antecedent that is a demand made on the person that requires the person to respond.

This reasoning had earlier been posited by Lefrancois (1982, p. 262) defining one's need in terms of a "*deficit or lack which gives rise to a desire for satisfaction*". This desire in turn gives rise to a determination in the individual resulting in the tendency to act. Aroused by the need, the person identifies a goal and then chooses a course of action that will lead to the desired outcome. However, obstacles or difficulties encountered during this action will cause the person to either persist with the effort but proceed at a slower pace or give up completely. Admittedly, this may lead to a new motive whereby a new set of actions and consequences then follow.

In the study of human behaviour, one of the most commonly asked questions is "Why?" That is to say, why do humans behave the way we do and why does our behaviour change or stop? Based on the theory put forward by Maslow, Franken (1994) then further posited that human needs are attributed to three basic components involved in all motivational systems:

1. *A biological component, guided by the genetic structure of the individual (p. 20);*
2. *A learned component, guided by primary needs for survival which we have acquired: hunger, thirst, sleep, temperature regulation, curiosity and even tactile stimulation (p. 25);*
3. *A cognitive component that involves thought, perception, synthesis and organisation of processes (p. 32).*

Motivation for music, therefore, comes from a learned component to satisfy one's curiosity and a cognitive component involving other processes that make it possible to achieve the stated goal.

Motivation in human behaviour can be classified into two types: intrinsic and extrinsic. The 'Self-determination Theory' put forward by Ryan and Deci (2000) asserted that motivation is intrinsic when individuals feel determined to complete a task for their own enjoyment or as a challenge. The authors established that intrinsic motivation prompts the individual to act to satisfy an inner need that is representative of one's self or to satisfy a personal goal. This factor represents one of the main reasons for mature-aged students to pursue music studies in the latter stages of their lives as reflected in their appreciation and enjoyment of the activity.

On the other hand, extrinsic motivation results from a need to attain certain outcomes and reflects the inherent value of the activity (Ryan & Deci). In relation to music, extrinsic motivation is triggered by a need to satisfy external requirements such as performing for financial benefits, practising for performances with others, for specific occasions, or to prepare for examinations.

Literature on theories of motivation seems to suggest that other factors (different or inter-related) have an impact on one's behaviour. According to Hallam (2002, p. 232) , "our personality, self-concept and self-esteem are, in part, determined by feedback from the environment".

The author was insightful in suggesting that human beings require approval and praise for their actions and will seek out environments that are conducive to their needs and further explained:

> *…the extent to which an individual is motivated to pursue musical activity will depend on the interactions between their characteristics, self-concept and goals and the characteristics of the immediate environment, including cultural and historical factors, the educational environment and the support they receive from family and peers.* (p. 233)

In doing so, the writer had taken into account both the intrinsic and extrinsic motivation that music students and performers would normally experience.

(Brown, 2000) pointed to the intrinsic nature of music with which the adult learner is more involved as a communication process. This concept is relevant assuming that adults have developed an intellectual capacity to engage in a way that younger students may not.

2.3 NEUROSCIENCE AND MUSIC

The effects of music on health is a widely written topic. In the early Twentieth Century, Podolsky (1934) had affirmed that the human body is deeply affected physiologically and emotionally by musical stimuli. He was also insightful in associating good music with good health. Seventy- four years later, Särkämö et al. (2013) verified that playing an instrument, singing or just listening to music has the power to affect the brain as demonstrated through modern brain research techniques. Other researchers have established that music has an enormous impact on brain functions by enhancing the neural circuits (Schulkin & Raglan, 2014; Thompson, 2015).

What this finding indicates is that music can be applied to assist in studying how the brain works and to understand behavioural patterns (Koelsch, 2013).

Because of this knowledge, the field of music therapy has reported positive outcomes and considerable success. (See page 23 of this thesis)

In neuroscience, research has shown that the human brain is capable of 'rewiring' (neuroplasticity: creating new neural networks – synaptic pathways) to facilitate the learning of new patterns of thought or movement (Merzenich, Van Vleet, & Nahum, 2014). Doidge (2007) cites experiments that have proven the brain's capacity to adapt to new conditions thereby improving cognitive and physical functions. The brain is constantly adapting to new thoughts and behavioural patterns. Each time we receive new information, the brain changes. Due to developments in current brain research and neuroscience, it is now possible to explain some of the complexities and workings of the brain.

Plasticity is the scientific term used to describe the brain's ability to structurally change by learning (Sherman, 2017). An earlier report had proposed that brain plasticity is fundamental in the learning of new skills (Pascual-Leone, 2001). According to the author, in learning to read and play music the brain undergoes changes and adapts to new conditions. The implication is that because the brain is capable of change, a possibility exists for the older generation to learn to play an instrument or sing at the later stage of their lives.

In making the case for brain health, Andreasen (2005) identified learning an instrument as an important resource for creative thinking and stimulating the brain. Reading musical notation requires visual, spatial and aural skills.

Therefore, it is likely that development and practice of these skills activate the brain and may help to promote lifelong learning and creativity resulting in a significant outcome to adult music students.

In terms of executive skills, it is generally understood that students acquire a solid technique through repetition of movements using the best coordination of the body with their chosen instruments.

Through repetition and practice, processes in the brain take a shorter time to facilitate the desired actions. Nerve cells called neurons send messages as chemical transmissions along their fibres to the fibres of other neurons; where the fibres meet is called a synapse; messages between neurons cross the synapse repeatedly (Andreasen, 2005). Current neurological research strongly suggests that when an action is repeated the same network of synapses activates, saving the experience as a lasting memory. Instrumental music-practice involves highly repetitive movements. Based on this premise the process of playing a musical instrument or singing is likely to become easier following a considerable length of time spent in the activity; I have noted this through my personal experience and with piano students whom I have taught over the years.

It is reported that the ability to learn new activities and process new information forms a lifelong learning endeavour for adults, resulting in an enhanced quality of life that, in turn, contributes to community well-being (Creech, Hallam, Varvarigou, McQueen, & Gaunt, 2013; Hays & Minichiello, 2002; Merriam & Kee, 2014; Perkins & Williamon, 2014).

In spite of this positive aspect, there is a possible risk that without proper training and guidance the student may develop inefficient habits in their body coordination and muscle use.

Many areas of the brain respond to musical stimuli with various levels of engagement depending on the person's musical experience. As clarified by Weinberger (1999, p. 90):

> *Music engages many areas distributed throughout the brain, including those that are normally involved in other kinds of cognition. The active areas vary with the person's individual experiences and musical training.*

In addition, he noted that "[professional] *musicians' brains devote more area toward motor control of the fingers used to play an instrument*" (p. 94). The writer supported this claim by citing experiments that demonstrate areas of the brain used to process information from the fingers of the left hand of violinists were significantly larger than those brain areas of non-musicians. An experiment applied to the areas in the musician's brain that control motor coordination also recorded similar results.

Furthermore, results from electro-encephalography (EEG) studies show how neuronal activities are influenced by musical training and expertise, further supporting the claim that music education has an impact on brain networks (Altenmüller, Gruhn, Parlitz, & Liebert, 2000). From these observations, we may conclude that extensive training in music will result in certain areas of the musician's brain becoming more highly developed, most possibly due to the constant exposure to musical sounds.

In music performance, three basic motor control functions are required – timing, sequencing and spatial organization of the movement (Zatorre, Chen, & Penhune, 2007).

Timing relates to musical rhythm, sequencing and spatial organization to playing notes on the instrument resulting in an overall sensory motor-integration. Results from experiments conducted by Zatorre et al showed that people who are musically trained possess a higher level of auditory motor interactions although it is not known how this phenomenon can be explained (Zatorre et al., 2007).

This enigma is echoed by Chen, Penhune, and Zatorre (2008) who confirmed that little is known about how the underlying neural systems integrate with motor systems to allow musicians to execute highly complex actions. The researchers investigated how musicians and non-musicians differ in their enactment and neural activity when completing a task. In accord with the observations discussed above, results showed that musicians displayed more accuracy in their organization of movement than non-musicians in responding to auditory cues. It was also suggested that extensive long-term training on the musicians' motor skills had resulted in better efficiency in their neural activities and in sequencing rhythmic events. Hence they are able to "*track, retrieve, manipulate and thus organize temporal information"* (Chen et al., 2008, p. 236). In the same way, we may assume that this facility could be reflected in the execution of non-musical related activities in the musician's daily life.

2.4 BENEFITS

Music has many attributes that connect to various aspects of our lives. Much research has been undertaken on the beneficial outcomes music provides. W.F.Thompson (2015) offered his perception of the qualities of music that contribute to a person's physical and emotional well-being. He was perceptive in associating the physicality of music with the maintenance of one's physical health. Performing music requires the execution of complex movements that must be sustained over a period. Agreeably, this action performed regularly and rigorously constitutes a form of healthy physical exercise if carried out effectively.

It is plausible that music acts as a means of slowing down the ageing process because it keeps all cognitive processes engaged. It could be, as suggested by Hays & Minichiello (p.447) that

> *Music provided the participant with ways of being interested and motivated in life. It facilitated the feeling of usefulness…it kept them occupied and focussed*.

This statement strongly suggests that the brain needs constant stimulation. As people retire from their normal working environment, there is an urgency to explore new avenues of stimulation. The study of music performance presents a popular option for many and is readily available in most communities.

There is considerable consensus that playing music and engaging with others provide a social benefit in terms of maintaining human contact.

As concluded by Creech et al (2013, p. 42) in their study on music making in older people,

> "*Active music making in a social context has the potential to enhance quality of life, well-being and physical and mental health in older people"*.

Importantly, this suggests that music serves a psychological need by giving one a sense of purpose in addition to enriching one's quality of life. The same sentiment is echoed in Hays and Minichiello's (2002) study into the meaning of music in the lives of older people. The authors concurred that the engagement in music performance had a profound effect on these people both physically and psychologically. Not surprisingly, participants reported that the engagement in music performance also gave them a way of expressing their inner self and spirituality.

As expected, an added benefit was a feeling of camaraderie and sense of belonging in the musical network. In this way, the problem of loneliness and isolation can be mitigated. The attraction of being in a group was appealing to adults because music- making was enjoyable and it gave the participants a sense of self-efficacy with a high level of high self-esteem. (Cooper, 2001; Kruse, 2012). Kruse's study may have been limited by the sample population that had a gender anomaly. Hays and Minichiello also conceded that their study discussed above was not representative of older people due to the small sample size.

Regardless, other researchers in the same field have produced similar findings, confirming the positive effects of music-making in this respect (Achilles, 1992; Brown, 2000; Pierce, 2012; Seinfeld, Figueroa, Ortiz-Gil, & Sanchez-Vives, 2013; Thompson). The affirmation is that the engagement in music performance benefits all groups of people and is not exclusive to age, gender or race.

The local community in Darwin boasts a group of senior citizens who reported that their lives had been enriched following participation in a band named "The Seniors Sunshine Band" (Roberts, 2018). These amateur musicians sing and play the ukulele, a humble instrument that has seen a revival in recent times. The success of this group may be due to its purpose "…to bring joy and happiness to its audience, but also to those who perform" (Roberts, p. 19). The article is based on interviews with members of the band and further supports the claim that music has the ability to affect a person's well-being.

Danish researchers (Ekholm, Juel, & Bonde, 2016) reported in a large scale survey the beneficial effects of choral singing on a singer's psychological well-being illustrating the fact that engaging in music can help a person stay mentally alert and healthy. This finding is replicated in a number of studies that have concluded that singing in a choir provides enormous benefits to people from diverse backgrounds (Clift & Hancox, 2010; Dingle, Brander, Ballantyne, & Baker, 2013; Judd & Pooley, 2014). Incidentally, in my survey, a large percentage of the participants belonged to choral groups and those whom I interviewed also confirmed their positive experiences with the choirs in which they were involved.

In summing up the benefits of music, Pierce (2012, p. 161) emphasised that:

> *Music is a constant companion as it entertains us, accompanies our rites of passage and uses its power to heal our mental, spiritual, social and physical challenges*.

The healing properties of music have been known since the first millennium B.C and through the Middle-Ages (W.F. Thompson, 2015). The Ancient Egyptians used music in this way too (Podolsky, 1934). Through research and studies on the application of music as an intervention in clinical and rehabilitative settings, much advancement has been made in the field of music therapy (MacDonald, 2013; Schneider et al., 2007; Thompson, 2015). Thompson described various experiments conducted and was able to validate positive results in patients who had undergone specific music therapy applications for their conditions. The author explained that therapy could be *receptive* where the patient listens to music or *active* in which patients participate in the music making process. (In the Discussion section I will present some observations from my interviews to illustrate the application of music as an effective therapy). Either way, the findings are worth noting because they highlight the fact that music has a holistic healing aspect.

The power to stimulate cognitive and motor functions in patients with brain impairments may be attributed to the way in which music is processed in the brain; an overlapping activity that involves other areas normally associated with non-musical functions (Brown, Martinez, & Parsons, 2006; Patel, 2003; Thompson, 2015).

The conclusion from Brown et al and Patel is that music can be used in the study of how the brain processes music, showing a close link between the two forms.

The transcendental nature of music makes it possible for a person to create a different mind space. In this way, music making may help to provide relief from stress and the daily pressures that one experiences in life (Hays & Minichiello, 2005). Similar research by Brown also indicated that many adults regard music as an excellent tool for use in dealing with stress and coping with the ever-increasing demands of technology. In this age of scientific and technological advances, fast paced lifestyle and financial obligations, people need a form of distraction to where they can retreat. This diversion is important because it helps to create a balance in one's life. It cannot be denied that human beings find pleasure by indulging in leisure activities some of which may be in the form of entertainment, sports or quiet contemplation.

Music is sometimes used as an aid to induce meditation. However, one could also argue that music itself is a form of meditation. By ascribing the notion of beauty to music, participants in the same study (Hays & Minichiello, 2005) indicated that they felt music had a spirituality quality. The inference is that music has a sense of mysticism that invokes our inner-self or spirit; a quality that is evident in performances that bring about emotional reactions be it joyful or sad.

Perhaps the same explanation could be applied to religious settings in which music is used through the singing of hymns to express the worshippers' fervour.

2.5 LIFELONG LEARNING AND CREATIVITY

Some adults may undertake a project due to their interest in the nature of the project or for the pleasure of the activity itself rather than for other related benefits such as better physical health (Achilles). In support of this reason as a motivational factor, Boswell (1992) and Ernst (2001) also claimed in their studies that adults pursue music activities for the intellectual and pleasurable rewards; they believe in the importance of lifelong music learning. The inference is that their motivation is both intrinsic and extrinsic as previously described (Ryan & Deci, 2000).

The Australian Bureau of Statistics (ABS) reports that of the 3.3 million Australians who participated in non-formal learning, arts, crafts or recreational learning represented the second most common type (http://www.abs.gov.au). According to the ABS, the population of Australia is set to change substantially over the next fifty years, with around one in four Australians being aged sixty-five or older by the year 2056. From the same source, an international survey on lifelong learning conducted in a number of European countries in 2003 reported participation rates in non-formal learning was for Sweden at 48%, followed by the United Kingdom and Australia. This phenomenon is due to a longer life expectancy and enhanced lifestyle in which recreational music-making presents an opportunity for personal development and social interaction, a trend that is evident in many countries (Bowles, 1991; Gibbons, 1982; Myers, 1992; Wristen, 2006). Consequently, adults have embraced the idea that music provides an avenue for lifelong learning.

We often hear the phrase “One never stops learning”. This statement is appropriate when applied to the act of learning to play a musical instrument because there is continual scope for improvement (in executive skills) and new information to process (associated with the musical pieces being studied). Adults generally believe that the arts (including music) contribute to quality of life and help to shape a person’s life by opening up new possibilities (Boswell). Lifelong learning therefore contributes to creative ageing by bringing to the adult student new experiences and opportunities for community engagement.

This particular aspect of music-making is an incentive for adult music enthusiasts to engage in music-making as confirmed by studies discussed earlier on community choral singing. What this means is that there is now a need for music-educators to design programs that will continue to provide motivation for their adult students. In developing these programs, it will be necessary to take into account the characteristics of these students and be guided by their needs, interests and current experiences. In saying so, there are dissenting views on the pedagogical considerations of this cohort of older students.

Brown (2000) suggests that due to their decreasing flexibility and slower reflexes, adult students may encounter difficulties in their instrumental studies, an issue that the tutor needs to acknowledge and manage. However this assertion is challenged by Forrester (1975) who stresses that this belief is an obstacle to adult music instruction if it is assumed that adults are unable to further develop their physical skills.

The author adds that this belief lends support to the claim that the adult mind has a limited capacity for new learning.

Forrester supports his argument by citing his own observations of adult students who have become capable performers, albeit on an amateur level.

In line with Forrester's view, Varvarigou et al (2013) dismiss the idea that older people are unable to progress due to their diminishing capacity and found in their study that these older students were able to actively participate in musical activities and benefit from their experience with the appropriate guidance and support. My view is that it is not possible to make generalisations because each individual is unique and will approach the ageing process differently according to one's lifestyle and belief system.

The human body is constructed to allow for fluid and sequential movements that work with other bodily systems for control and coordination (Parker, 2007). According to Hanna (1988), when humans develop sensory motor amnesia, they adopt certain postures and reflexes that result in hunched backs and collapsed spines, protruding chins and heads jutting outwards. The author argues that this degeneration occurs because of the belief that ageing means a degeneration of the body. I agree with Hanna's point of view that this belief contributes to the loss of proper body alignment and co-ordination.

2.6 KINAESTHESIA AND ITS IMPLICATION IN INSTRUMENTAL AND VOCAL MUSIC TEACHING

Music making is a physical activity: musicians are in constant motion. They move their muscles and joints in order to play their instruments or sing. A pivotal action research by Woodard (2009) addressed the need for musicians to have access to accurate and specific information about their bodies and their movement. The findings demonstrated that musical performance is enhanced through the body mapping exercise, due to a deeper sense of self-awareness as a person practises and performs. Woodard's study supported my premise that music students would benefit from being taught to be aware of their bodies, so they can learn to sense the way they move to sing or play their instruments. The author correctly argued that "…without body awareness there is no hope of intervening in the student's movement practice" (Woodard, p. 155). Responsibility, therefore, rests with music-educators to bridge the gap between mind and body by introducing ways to enhance sensory perception and movement.

Another advantage of being body-aware and body-focussed is that students become more engrossed in their musical learning and experience (Juntunen & Hyvönen, 2004). The authors propose that the body learns by reacting to sounds and movement, a concept on which Dalcroze based his Eurthythmics principles. Body movements allow musicians to express the elements of rhythm and emotions resulting in an enhanced performance (Klickstein, 2009).

Two other methods that train musicians to move with “integration and awareness” (Klickstein, p. 104) are the Alexander Technique and the Feldenkrais method. These body education programs are gaining popularity among music-students and professionals thereby highlighting the importance of developing one’s kinaesthetic perception.

Kinaesthetic awareness is a fundamental component in the Lister-Sink Method that teaches well-coordinated and injury preventive keyboard technique(Lister-Sink, 2005). It is necessary to mention that I am referring only to the body movements that are applied to facilitate the playing process and not to excessive gestures and flamboyant movements so often observed in pianists who can and often indulge in this showmanship. It is disconcerting that some performers believe an absence of these non-essential movements equate to playing without expression, as studies have indicated (Thompson & Luck, 2012; Van Zijl, 2012).

I need to explain that there are movements such as musical gestures that are required for the proper execution of a musical phrase. As an example, in playing notes that are written under a slur (curved line),  a slight lift of the wrist joint at the end of the slur is required for articulation purposes. This type of movement constitutes an essential movement. In the execution of this slur, a release of the wrist joint is necessary to facilitate the movement. The student learns to do this by cultivating an awareness of muscles and joints (Lister-Sink, 2007).

This musical gesture is not to be confused with facial expressions and unwarranted body movements that may distract from the performance.

In recent decades, vocal instruction has taken a new turn. The Estill Voice Training method pioneered by Jo Estill is based on anatomical and physiological considerations with the aim to promote a safe and more efficient voice production for singers and actors. The voice mechanism is invisible, so it is particularly important for singers to be able to learn to sense what muscles they are using and how to apply the correct manoeuvres in voice production. The sensation and feedback mechanism thus relies heavily on a strong kinaesthetic awareness in the body; this enables the singer to learn proper control of muscles that are required for the task (Ohrenstein, 2003, p. 31):

> *Many parts of the body that must be moved with great precision in singing – the laryngeal muscles, the tongue and lips, all the various muscles of the respiratory apparatus – become available to kinaesthetic awareness only after much practice and concentration.*

In a milestone study, Galvao and Kemp (1999) advocated the importance of training students to develop their kinaesthetic sense in the learning of their instruments. In doing so, the researchers were strongly promoting the principles of Orff, Dalcroze and Suzuki, renowned music-educators who stressed the relationship between sound and a tactile experience. The significance of this practice is that it can result in a stronger relationship between the student's body and the instrument concerned.

Galvao and Kemp (1999) called attention to the fact that technological advances have made it possible to investigate kinaesthetic feedback, a move that may provide insights into training instrumental music students to be more aware and attuned to their body movements. Consequently, what this implies is that the responsibility lies with music providers to ensure their music tutors have access to the proper training in order to teach in this new way. Private music tutors have a responsibility to ensure that they maintain current knowledge and stay informed. Students both young and old would benefit from this knowledge, made possible through scientific investigation and further research.

One of the techniques that has been in use for developing self-awareness is the Alexander Technique. Based on the teachings of F.M Alexander, the aim is to enhance and improve the quality of movement by developing one's awareness of the sensations involved. Our physical movements are governed by certain laws that if learnt and applied become better coordinated, graceful and effortless (Rosenthal, 1987). According to Klein, Bayard, and Wolf (2014), their assessment of studies concerned with performance aspects, body use and posture showed that the Alexander Technique had the potential to alleviate performance anxiety even though other effects were yet to be established. Other researchers have also suggested that there has not been enough scientific evidence to warrant the efficacy of the Technique (Jain, Janssen, & DeCelle, 2004) although case studies and testimonials from instrumental musicians, singers and dancers continue to confirm positive results.

Furthermore, the value of this practice is reflected in the number of leading institutions that have adopted its use in their curriculum. These institutions include the Victorian College of Arts, Australian National Academy of Music, National Institute of Dramatic Art and internationally, the Juliard School of Music (USA) and the Royal Academy of Dramatic Arts (UK). The Alexander Technique is also used by the Melbourne and Sydney Symphony Orchestras (AUSTAT; MSO,2017; SSO, 2017).

A relatively new field that specifically addresses the needs of musicians is Body Mapping. William Conable, Professor of Cello Ohio State University School of Music USA who developed this concept, found that his students moved according to how they think their bodies are constructed rather than how they are actually constructed. The students' ideas or concepts of their own body maps had a considerable influence on the way they moved (Conable, 1998). By correcting their body maps, participants in a study by Buchanan and Hays (2014) reported improvements in their performances; confirming that body mapping had enhanced their co-ordination, movement and articulation.

The results from Buchanan's study reiterated Woodard's (See p. 16) call for tutors to instruct in a more embodied way, one that incorporates somatic education.

This approach also forms the basis of the Lister-Sink Method previously described. The method has been effective in retraining pianists who have suffered injuries because they were able to 'reconnect' with or become more attuned to their bodies.

Baader, Kazennikov, and Wiesendanger (2005) bemoaned the lack of information about the role of tactile and kinaesthetic cues in playing music musical instruments. A possible explanation may be the fact that the individual is more concerned with and, therefore, focussed on auditory feedback rather than kinaesthetic sensations involved in the process. This view is congruent with that of Shan and Visentin (2010) who posited that "…the focus of music teaching is artistic and outcome driven rather than process oriented" (p. 9). The authors further clarified that not all music teachers are equipped with the essential skills and knowledge to teach biomechanical concepts that form an important part of the activity. This matter is of concern because tutors can only teach what they know and according to the way they were taught, stated succinctly by Lister-Sink (2007) who also cautioned that, as a result, misinformation is often communicated to their music students.

2.7 NEW TEACHING PARADIGMS

Adult students respond differently to their learning environment and opportunities. There is no doubt that those who are highly self-motivated display a higher level of energy and enthusiasm that can bring inspiration to others in the same class. Literature on adult learning including the trends and theories surrounding their learning experiences established that in general, adult students have a clear idea of their motivation and goals (Bowles, 1991; Livingston, 2003; Perkins & Williamon, 2014; Taylor, 2011). The implication is that teaching approaches and strategies for adult students need to be flexible and individualised.

In discord with the beneficial outcomes discussed above, Orlofsky and Smith (1997) asserted that adult students may encounter problems in certain physiological and logistical areas. Even though the subjects of their discussion were keyboard students, it would be reasonable to assume that adult students learning other instruments might experience similar problems.

In order to create a positive learning environment music tutors need the expertise to address these issues and be able to deal with students in a professional manner. By surveying the experiences of adult students, Brown (2000) was able to put forward some important pedagogical considerations for the teaching of adults. The issues that I found significant were those that dealt with body use and awareness. In particular, the author cautioned that training needs to be carefully structured to prevent injuries, providing a salient point to my research objectives.

The dissemination of accurate information is vital because as Mehling et al. (2009, p. 1) emphasised, "…heightened body awareness can be adaptive and maladaptive". What this implies is that maladaptive or inappropriate movements adopted in playing instruments or singing places the student at risk. Students and especially professional musicians are predisposed to many factors that may cause injuries (Amaral Corrêa et al., 2018; Jing, 2018; Ling, Loo, & Titi Rahmawati Hamedon, 2018; Rensing, Schemmann, & Zalpour, 2018).

> *Playing-related musculoskeletal disorders arise from repetitive, awkward postures while playing, and postural stress from prolonged sitting or standing… (Foxman & Burgel, 2006, p. 314).*

Foxman and Burgel acknowledged the value of body awareness programs (the Alexander Technique and Body Mapping) in music education.

Moreover, the authors stressed the importance of addressing risk factors in the performance of music. There is no doubt that correct and efficient use of the body provides the best coordination, not only in playing instruments or singing but also in the daily activities that we perform (Dul & Neumann, 2009). Consequently, physical stress is minimised.

Woodard (2009) through her action research verified that a sense of body awareness contributes to musical performance and maintains the importance of disseminating essential information to musicians. By introducing the concept of body mapping she was able to present new anatomical information to students in her project; this was found to enhance their performances. This pedagogical aspect is of significance to music educators who may need to change the way they teach so that the performance of music becomes a more holistic experience.

The importance of teaching movement to music students was highlighted earlier by Juntunen & Hyvonen (2004). Even though their research focus was on body movement and Dalcroze Eurhythmics, the authors acknowledged the role of kinaesthesia in developing one's aural and perception skills. This constant reminder deserves attention from music education providers. In saying so, the effectiveness of instrumental teaching through accurate anatomical information can be evident only when the student has developed a full kinaesthetic awareness.

2.8 PERFORMING ARTS HEALTHCARE AND WELL-BEING

Musicians' health and well-being has been a topic of great interest in recent years as evidenced by the large number of studies on musculoskeletal problems and other playing disorders faced by musicians: Ackermann (2010); Altenmüller and Jabusch (2009); Brandfonbrener (2010); Hochberg (1983); Hoppmann (2010); Lederman (2010); Norris (1993) and Rosen (2002). Some of the problems include overuse of tendons and muscles, compression of nerves and motor dysfunction. Hearing loss is also a common problem experienced by musicians in a high-risk instrumental group such as brass wind and percussion (Greasley, Fulford, Pickard, & Hamilton, 2018). Jansen, Helleman, Dreschler, and de Laat (2009) investigated musicians in a professional symphony orchestra and suggested that effective hearing protection is warranted to mitigate the risk of hearing loss and associated problems. Studies on keyboard players reveal that the upper body area (including the neck, shoulder and back), hand, arm and wrist are most prone to injuries (Amaral Corrêa et al., 2018; Furuya, Nakahara, Aoki, & Kinoshita, 2006; Ling et al., 2018; Moñino, Rosset-Llobet, Juan, Manzanares, & Ramos-Pichardo, 2017). Injuries to the same sites are also evident in string and wind players (Kok, Nelissen, & Huisstede, 2015; Lonsdale, Laakso, & Tomlinson, 2014; Rensing et al., 2018; Silva, Lã, & Afreixo, 2015). In addition, wind players may also experience lip and jaw pain (Eric Wallace & Derek Klinge, 2016).

The proliferation of research and studies that deal with musicians' injuries highlight the fact that there is not enough information being disseminated to students about injury prevention techniques. Being able to play an instrument or sing is dependent on an understanding of the physical movements involved and the biomechanics of the instrument or for singers, the anatomy of the larynx. Pierce (2012) argued convincingly that new paradigms for teaching should include knowledge of injury prevention, a greater understanding of music, health and well-being issues. This call is supported by other professionals in the field (Berenson, 2002; Buchanan & Hays, 2014; Conable, 1998; Klickstein, 2009; Lister-Sink, 2005; Norris, 1993; Wijsman & Ackermann, 2018; Woodard, 2009) and represents a positive step because the implementation of these strategies may lead to better performance outcomes for students, both young and old. It is more likely that mature-aged students may present physical and psychological health issues. Accordingly, there is an urgent need for these issues to be recognised and satisfied so that students continue to be motivated in their music making.

An observation from Ananda-Owens (2013) in the Medical Problems of Performing Artists concerning the "…fundamental lack of anatomical and biomechanical knowledge among many, and perhaps even most piano pedagogues…" is succinct and highlighted the fact that there is a potential risk of injuries. The writer was referring to piano teachers in particular but it is important to acknowledge that the same concern might also apply to teachers of other instruments and performing artists.

In an effort to address performing health issues, several key companies in Australia including orchestral, opera and dance have adopted programs and strategies that promote healthcare and well-being (Verghis, 2012). This positive investment in the interest of their members means that access to medical intervention is available and leads to better self-assurance and job security. It is worth noting that the first professional medical organisation known as the Performing Arts Medicine Association (PAMA) was formed in 1989 in America with the aim to connect physicians, performers, teachers and promote research in this field. Consequently, the Australian Society for Performing Arts Healthcare, established in 2006 promotes engagement between performing artists, medical practitioners and researchers through conferences and workshops.

2.9 CONCLUSION

This Literature Review has given some indication to the current state in the field of adult music learning from different perspectives. The literature has highlighted that motivation is often attributed to self-fulfilment of a personal goal. Also, in the field of neuroscience evidence of brain plasticity has been shown to have vast implications in adult learning be it music or other. The application of music in rehabilitative therapies and healing has also contributed to research in the area (Hatem et al., 2016; Schneider et al., 2007; Thaut, 2005). Overall, it has appeared that most research conducted on the beneficial outcomes from engaging in music making have reported similar findings.

These benefits include a better sense of physical and emotional well-being, a better quality of life from the social aspect and personal gratification. Music is considered an activity that can promote lifelong learning and creativity as many studies have established.

Current research on the application of kinaesthetic awareness in instrumental (including vocal) teaching is still introductory although there is a consensus that learning to play a musical instrument or sing is dependent on a highly developed kinaesthetic sense. Furthermore, not much research has advocated the importance of teaching (executive skills) from a biomechanically informed perspective so that the most efficient and effective movements are used in the activity. There are gaps in these respects that may result in the risk of injuries to music students.

The world of performing arts and health medicine has generated considerable interest to warrant reactions from various groups concerned. The interest in performance health and well-being is evidenced by publications highlighting the problems faced by musicians and various international organisations that have been formed to address these issues. Although this is encouraging, I believe that more work is necessary to engage those in the profession in order to create a safe environment for music teaching and continue to motivate students.

The next chapter discusses the research design and gives an account of the methods used for data collection, the selection and recruitment of participants, limitations and reliability, ethical guidelines, procedure and survey instruments used for data collection.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter presents the parameters around which I have framed my research, that is: the research design; justification for the methods, participants selected; groups from which they were drawn; the formulation of questions for the survey and the recruitment process. In addition, the survey instruments used, the reliability of the survey instruments used, as well as the data collection procedures and the ethical guidelines will be discussed.

3.2 CONCEPTUAL FRAMEWORK

One of the difficulties I encountered at the start of the research process was identifying an appropriate title for my project. My initial idea was to investigate the demographics and motivation of adult music students. However, the desired outcome was for this project to generate data that is useful and applicable to music education and performance. From readings on research methods and formulating research questions, I decided to modify the focus of my research topic. Motivation would remain a key feature, but I wanted to include the subject of kinaesthetic awareness; which is an aspect of music learning and performance that could possibly form a fundamental part of the process.

The second topic that I considered was "*Adult music students' motivation and perception of kinaesthetic awareness in developing fine motor control*", which was the title on which I based my presentation for my Confirmation of Candidature.

The feedback I received from the panel was that there needed to be a clearer link between student's motivation and their kinaesthetic perception. Moreover, my Principal Supervisor had advised against focussing on subjects that are beyond the scope of my knowledge and outside my professional expertise. The implication was that such a project would have required, among other tasks, gathering the measurements of muscular effort in the performance of a specific task when playing a musical instrument or singing.

In the process of refining the title of my project, I realised that it would also be possible to investigate the benefits adult music students may have experienced from engaging in a musical activity; this could provide a link to their motivation. In addition, a question framed around the topic of kinaesthetic awareness could be included in the investigation regarding beneficial outcomes. Therefore, I assumed that potential participants would be able to provide some insights into how playing a musical instrument or singing has affected their sense of balance and movement. Making this connection allowed me to frame my research around three questions namely:

- What motivates an adult to learn to play a musical instrument or sing?
- What are the perceived benefits from engaging in this activity?
- Do the benefits include a better sense of kinaesthetic awareness in terms of posture and body use?

The last question adds a pedagogical aspect to the research, hence the final title "*Adult music students: motivations for learning a musical instrument, perceived benefits and pedagogical considerations*". Having finalised the project title, I had to decide whom I would include in my survey.

Would it be worthwhile to include adults who are currently playing in an orchestra or ensemble or singing in in a choir? Surely, their experiences (both past and present) are worth documenting and their inclusion, as participants would increase the survey population. My decision was justified because this cohort would be practising and constantly learning new repertoire in their playing/choral environment. To capture a wider audience, I worded the flyer to target not only adult students but also amateur musicians who play or sing in local ensembles. In this way, I was able to involve community musicians who had a higher level of experience in music making.

Participants in the survey identified their status of musical involvement by selecting a response in the demographic questions at the start of the questionnaire. Participants in the interviews identified whether they were current students and level of playing skill or members currently performing in a musical organisation.

3.3 RESEARCH DESIGN

The research follows a qualitative approach, using multiple methods of data collection. Qualitative research explores a phenomenon or situations in a natural setting to explain process or understand behaviour by collecting the participants' stories. Kumar (2014) suggests that due to its less rigid structure, a qualitative approach is better suited in social research to explore the diverse experiences of a group of people:

> *Study designs in qualitative research are more appropriate for exploring the variation and diversity in any aspect of social life*… (Kumar, pg.133)

My project concerns studying people's behaviour and attitudes towards a particular subject, in this case, the study of a musical instrument. As such, this research design is classified as a cross-sectional study in which groups of people sharing a common trait are studied at the same time (Kumar, 2014; Thomas, 2009; Walliman, 2006).

The three research questions given above call for descriptive answers that I believe I can provide from two methods commonly used to collect primary data. Participants could either complete an online questionnaire or take part in a semi-structured face-to-face interview; thus allowing participants to engage in my survey in a convenient and stress-free manner. I had also considered non-participant observation but felt that it would not be as appropriate as the other two methods. For the purposes of my research, information given by the subjects provides a more accurate account than information I would have recorded from my observation of their activities.

3.4 PARTICIPANTS

The study population, drawn from a regional community (Darwin in the Northern Territory of Australia) was restricted to participants aged thirty and above. I have assumed that this group of mature-aged adults would have had more time to reflect on and respond to a variety of processes in their lives. Therefore, they could provide a better insight into their experiences in the learning and practising of their respective instruments.

Members from the Centre for Youth and Community Music, Darwin Symphony Orchestra, Darwin Chorale and the Arafura Ensemble participated in this project. Participants share a common characteristic in that they are all adults engaging in music making. Some of them are currently enrolled students while others have been past students at the Centre for Youth and Community Music or Charles Darwin University (CDU).

Established in August 1990, the Centre for Youth Music (CYM) at the then Northern Territory University (NTU), its purpose was to provide instrumental tuition to students after school hours. In 2010, it was renamed the Centre for Youth and Community Music (CYCM) at Charles Darwin University (a merger between NTU, the Menzies School of Health and the 'Centralian' College at Alice Springs) to reflect its broader role in providing music education for adults as well as the youth of our city. Since its inception, the CYCM has continued to grow and develop more non-award courses for adults in individual instrumental tuition and ensemble programs including 'Vox Crox' a Community Choir, 'Still Belting Out' a seniors' choir, the 'Adult String Ensemble' and the 'Clarinet Choir'.

'Vox Crox' was established in 2009 as a community choir; it currently has a membership of around sixty. The Choir embarked on its first overseas concert tour to Italy in September 2017, giving performances in four towns.

'Still Belting Out' consists of between twenty and thirty members who are all over the age of sixty-five. These members come from different backgrounds and share a common interest in singing. The 'Adult String Ensemble' and 'Clarinet Choir' cater for mature aged students by providing opportunities to rehearse and perform as a group. The majority of the members in these groups are non-professional musicians who are involved mainly because they enjoy making music with others.

The 'Darwin Symphony Orchestra' (DSO) is a community orchestra of around sixty volunteer players, with the addition of a few paid players in important roles. The Orchestra has been entertaining local audiences since 1989 and is known for its tradition of taking music to remote communities.

The 'Darwin Chorale' has been providing musical entertainment to Darwin audiences since 1985. Members rehearse weekly at Charles Darwin University and perform several concerts a year along with a variety of community events.

The 'Arafura Wind Ensemble' comprises some past students of Charles Darwin University, a few of whom are key-players. This group of volunteer players meets for weekly rehearsals at Mary Mackillop College, Palmerston and gives several concerts a year.

The last three organisations were included in the survey to gain as broad a spectrum of participants as possible. Towards the later part of the survey period, I sent emails to some acquaintances who were involved in musical activities inviting them to complete the questionnaire.

The decision to stop data collection came about when it became clear that there would be no further responses to the survey and I had finished interviewing 7 participants. The period taken for data collection was in line with my proposed timeline that allowed for a maximum of three months.

A total of 57 participants were surveyed. Data revealed the majority of the participants (23) were in the 60-69 group. Accordingly, the majority of these participants (22) were retired. 16 of them work full-time, 16 part-time and 3 were unemployed.

With regard to music participation, 4 were beginner students who had been learning for less than three years; 7 were intermediate students learning four to six years; 15 were advanced students who had learned for seven years and above.

Included in this survey group were 31 participants who are not taking lessons but currently performing in a group. This cohort was included because they are still practising and learning new repertoire or skills in their playing/choral environment; they could also report on their past experiences as music students. Their instruments ranged from bassoon, cello, clarinet, double-bass, flute, guitar, harp, percussion, piano, violin, viola, and voice.

3.5 SURVEY QUESTIONS

In writing statements for the survey, I considered the relevance of each to the research questions. Therefore, in asking about motivating factors, I included reasons that would be applicable; these ranged from aspects of intrinsic motivation such as personal satisfaction to extrinsic motivation reflected in statements about making music to satisfy external conditions and requirements. These concepts were based on the principles of human motivation according to Maslow's (1943) Theory and Hierarchy of needs, and those of Ryan & Deci's (2000) 'Self-Determination Theory' as discussed in Chapter 2 of this thesis. Statements regarding cognitive well-being were formulated based on findings from research into neuroscience (Merzenich et al, 2014; Andreasen, 2005; Sherman, 2017). Statements pertaining to physical and emotional well-being were based on observations from previous studies (Cooper, 2001; Ekholm & Blonde, 2016; Hays & Minichiello, 2002; Kruse, 2012; Thompson, 2015). Again these statements reflected both internal and external conditions. To address the last research question, part of the questionnaire relating to benefits perceived from music-making was divided into subsections to ask specific questions relating to sense of movement and self-awareness. Previous studies have suggested that students would benefit from being trained to apply their kinaesthetic sense in playing their instruments or singing (Galvao & Kemp, 1999; Ohrenstein, 2003; Woodard, 2009). In order to determine whether the beneficial outcomes included a better sense of kinaesthetic awareness, I referred to the literature and formulated statements based on published studies and reviews that correspond to the topic.

These statements would reflect the student's perception of their movement, control of muscles, sense of balance and therefore, the student's awareness or lack of their kinaesthetic sense.

3.6 LIMITATIONS - RELIABILITY

The aim of this study was to find out why adult students, particularly in Darwin, take up instrumental music lessons and what benefits they have experienced. To ensure the reliability of the research instrument, it was necessary to devise questions and statements that were clear and unambiguous (Kumar, 2014). This procedure would allow a replication of the process in a different setting although there are a few points to note.

Students who have just started lessons may not necessarily provide the most reliable data. These students would not be able to report on the long term benefits of learning and practising on their instruments; this is due to the lengthy period it takes for conditions to become palpable. Another factor that had to be kept in mind is that the participants' responses would be of a subjective nature due to the diverse instrumental teaching methods. Some tutors (teachers) may place greater emphasis on the use of the body while others may not address this issue in their teaching. It is generally thought that unless they have been exposed to other methodologies, teachers would teach in the same way in which they have been taught (Lister-Sink, 2007).

Furthermore, older students just starting lessons may encounter a unique set of problems due to conditions that often accompany the ageing process such as a slower speed and less accuracy in fine motor movements (Krampe, 2002).

These students who have never played an instrument or sung before may not be in a position to readily access and gain control of muscles that are required for the task.

On the other hand, information provided by participants who have been actively engaged in music making for a longer period would reflect a different set of values. The positive responses to statements about physical well-being, cognitive functions, and self-awareness might not necessarily be a direct result of musical intervention. Some adults maintain a healthy regime of exercises such as swimming, walking and dancing to keep themselves physically fit; they also engage in intellectual pursuits to keep themselves mentally alert. Therefore, it is highly probable that these activities may also contribute to their overall well-being.

Regardless, the research has generated data that I can use to answer questions about why adults continue in the practice of their instruments. We can also assume that they must experience some beneficial outcomes that continue to motivate them in their musical pursuits.

3.7 PROCEDURE

Upon approval of my ethics application by the CDU Human Research Ethics Committee, I wrote to the directors and chief executive officers of the four organisations who then agreed to distribute a flyer advertising my research project via email to their members' mailing list.

The flyer informed potential participants that they could either complete a questionnaire online,
a procedure that would take not more than ten minutes of their time or take part in a twenty-five-minute interview. Participation was voluntary and respondents received no financial benefits or incentives for their efforts. Participants who wished to do interviews made telephone or email contact with me to arrange a time.

3.8 SURVEY INSTRUMENTS

I had two online survey tools at my disposal: Survey Monkey and Qualtrics. I chose to use Qualtrics for which Charles Darwin University has a licence so I was able to make use of the program to create my questionnaire. Considerations given to constructing the questionnaire were its length, clarity, and precision of statements and questions. Sentences were short and each covered a single idea (Payne, 2004).
Participants accessed the questionnaire via an anonymous hyperlink on the flyer advertising my project. The survey was open for a period of twelve weeks. Before starting the questionnaire, participants had to read the Plain Language Statement that contained the following information:

- A general outline of the project, its aims and benefits;
- Participant involvement: time commitment required;
- The voluntary nature of the project and the right to withdraw at any time;
- Assurance of confidentiality and anonymity;

- Data storage;
- Human ethics clearance;
- Contact details for concerns or complaints.

A preamble on the questionnaire reminded participants that taking part in the project was voluntary and they were free to decline to participate without penalty. They could withdraw from the project at any time while completing the survey, without penalty, by closing the browser window.

By submitting the completed questionnaire, they would give their consent to participate in the anonymous survey for which no identifying information was recorded. By default, Qualtrics collects IP addresses but this could be averted by selecting the 'Anonymize Survey' option.

All participants provided demographic information on their age, current work situation, what instruments they played, their current performance level, whether they have been past students at the CYCM or CDU, or if they were playing or singing in a group.

The main section of the questionnaire contained statements about possible motivating factors and beneficial outcomes to which respondents rated using a five-point Likert scale. The Likert scale is one of the three major kinds of attitudinal scales and one most frequently used to measure the attitudes of respondents to a particular issue Payne (2004). Also known as the summated rating scale, it is based on the assumption that each statement has equal significance (Kumar, 2014). My study is concerned with measuring the diversity and spread of attitude so this scale was relevant.

Respondents had to rate the level of agreement for each statement as Strongly Agree; Agree; Neither Agree nor Disagree; Disagree or Strongly Disagree; or Not Applicable.

In order to determine the quality of questions, I invited one of my adult students at the CYCM to pre-test the survey instrument. A slight change of wording was required for better clarification of some statements. A final copy of the questionnaire is attached as Appendix A.

I was conscious that some older members of the community may not have ready access to a computer to complete the survey online. Therefore, an interview option was open to them, a decision that accorded interview sessions with 7 highly motivated adult music students. The participants who took part in the semi-structured interviews answered similar questions to which they could provide insights that were more elaborate.

The interviews took place in my office at Charles Darwin University with each lasting not more than thirty minutes in duration. I conducted these sessions between 16 March and 9 April 2018 and recorded using an Olympus Voice Recorder WS-852.

Prior to the interview, each participant read the Plain Language Statement and signed the Informed Consent Form. All of the interview sessions ran smoothly and participants were excited to share their stories. I made the decision to record the interviews because it allowed me to focus on the interview rather than note taking during the process. At the end of the interview, I asked if there was any information that the respondent did not wish to include as data in the transcript. Following transcription, I ensured that all audio recordings were erased.

One of the limitations in conducting face-to-face interviews is the element of "…prestige bias" as participants may want to "…appear clever…educated" (Kumar, 2014) or as Anderson (2010) suggests, be inclined to confirm what the researcher wants to hear. Therefore, it was necessary to consider and gauge how participants conveyed their responses in view of their sentiments and prejudice towards the subject (Anderson). I did not believe there was evidence of any bias during the interviews and was assured that all participants were genuine in their responses and reactions towards a non-contentious subject.
In asking participants about their motivations for learning a musical instrument, questions reflected the following areas:

- Appreciation of music;
- Improvement of skills including cognitive and technical;
- Physical needs;
- Emotional needs;
- Intellectual needs;
- Inspiration from others.

Participants identified beneficial outcomes from the following areas:

- Sense of movement and balance;
- Sense of self and body awareness;
- Physical well-being;
- Emotional well-being;
- Cognitive implications.

At the end of the survey and interview, respondents answered a question that asked if learning and practising on their instruments had enhanced their kinaesthetic sense. I believed that the responses to this question would provide an insight to the last of my research questions: do the benefits include a better sense of self, posture and body use? A response in the positive may suggest that students access their kinaesthetic sense in learning and practising on their instruments.

A negative response may be due to one of the following reasons:

- Students had not been taught to access their kinaesthetic sense in the learning of their instruments;
- Students had not spent sufficient time practising on their instruments to report a positive response;
- Their lessons focussed exclusively on learning to read notes and rhythm rather than technical issues.

The final method undertaken in my research was a review of the literature to investigate similar research carried out on adult music students. There was sufficient literature on motivation and outcomes but a search on 'kinaesthetic awareness and instrumental music' demonstrated the lack of research in this field.

In the following chapter, I will present data collected from the questionnaires and interviews in a narrative format corresponding to each theme.

This information will include raw data in the form of quotes from the interviews that may provide more credence and reliability.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

This chapter presents the results of my research. The research investigated:

- The motivating factors for adult music students and community musicians;
- The beneficial outcomes they experienced from engaging in music learning and performance and subsequently;
- The implications, in terms of their kinaesthetic awareness, as reflected in their posture and body use.

The data was collected using an online questionnaire and semi-structured interviews. The material is presented under the main headings and sub-themes relating to the concerns of the study. Due to the qualitative design applied to this study, the data is in a descriptive and narrative format. Responses to open-ended questions in the questionnaire and the insights from the interviews are included verbatim. In order to show that a range of participants contributed to the data, a code comprising an alphanumeric (one letter and one number), for example, 'S1' is associated with each quote. Demographic information about the participants is displayed in tables as Appendix C.

4.2 RESULTS FROM ON-LINE SURVEY

There were fifty (50) responses to the online questionnaire; this number represented one third of the study population. It was estimated that 150 people would have received the invitation to participate in the survey. The on-line questionnaire comprised two main sections, the first contained statements relating to their motivation. The second section pertained to the beneficial outcomes the participants perceived they had experienced. Included in the statements are the experiences that relate to the participants' kinaesthetic perception classified under the following areas:

- Self-awareness and control of muscles involved in the activity:
- Sense of balance;
- Joint mobility;
- Physical well-being.

In answering the questionnaire, the participants had to select 'Strongly Agree' (SA), 'Agree' (A), 'Neither Agree nor Disagree' (NAND), 'Disagree' (D) or 'Not Applicable' (NA) to ascertain their experiences with a listed series of statements. For the purposes of interpreting the results, I have chosen to take into consideration responses that are mostly 'Strongly Agree' and 'Agree', in cases when these two options comprised half or more of the total responses to that particular statement. In these instances, the other responses would be too small and therefore, regarded as insignificant.

However, a few of the responses 'Neither Agree nor Disagree' and 'Disagree' have been included where relevant for the purposes of discussion.

The number of responses to each question is expressed as a percentage, followed by the level of agreement indicated.

4.3 MOTIVATION

On the subject of music appreciation and enjoyment, the majority of participants agreed that having the skills to appreciate and enjoy music provided the motivation to continue to pursue their music studies (76% SA and 24% A). There were no other responses recorded for this statement.

Sixty-two percent (26% SA; 36% A) of the participants believed that a desire to fulfil a life-long ambition was their motivation. A quarter (25%) of the participants were indifferent to this statement.

Learning new skills and improving the participant's current skills in music-reading and executive skill level (technique) played a vital part in motivating adult music students. As expected, this attracted positive responses (38% SA; 46% A) from those keen to learn new skills while a majority also indicated a desire to improve their current level of skills (58% SA; 31% A).

A desire to maintain current executive skills attracted affirmative responses from well over half the participants (48% SA; 35% A).

Some mature-age (retirees) students also reported that they had more free time and were determined to use their time in a constructive and creative manner by engaging in musical activities.

This cohort of students felt inspired to occupy their time by doing something that they believed to be challenging (40% SA; 46% A). Furthermore, 'keeping the brain active' was very important to the mature-aged (retirees) cohort as confirmed by the same number of responses to this statement.

Training their ability to concentrate and focus attention was important to over half the participants (17% SA; 42% A) while the rest of the respondents did not share this aspiration.

Forty-one percent (9% SA; 32% A) of the participants expressed a desire to maintain their physical condition while the rest of the respondents recorded negative views (32% NAND; 23% D). This particular statement was the first to draw a considerable number of unexpected responses.

The same sentiment was also reflected in the statement that followed regarding the desire to maintain one's sense of balance, movement and coordination, where most participants had no conviction (40% NAND). Only a 35% (9% SA; 26% A) identified with this motivation to maintain physical well-being.

A large majority of the participants (29% SA; 46% A) expressed their interest in learning to use correct and efficient movements in playing or singing and felt that this was important.

Eighty-one percent (34% SA; 47% A) of the respondents reported that they engage in music-making as a way to relax and deal with stress in daily life. Accordingly, a need for social interaction was seen as an important motivator to the same cohort of respondents (31% SA; 49% A).

In terms of performance goals, 40% of the participants revealed that they were not motivated to undertake music-examinations (Australian Music Examination Boards or other). However, they were enthusiastic about opportunities to perform and learn new repertoire as evidenced by the responses.

More than half (19% SA; 38% A) indicated that they wanted to perform in concerts while the remainder were undecided or disagreed. A majority were motivated to learn advanced repertoire (30% SA; 41% A).

Participants agreed that they felt motivated by family members who continue to encourage them in their musical pursuits (11% SA; 33% A). When asked if their tutors/teachers gave encouragement, there were varied responses, ranging from the number who agreed (30% A) to those who were undecided (23% NAND) and a rare instance where a large number felt that it was not applicable (32% NA).

Fifty-four percent (11% SA; 43% A) of the participants believed that friends or fellow students were more encouraging and a source of inspiration and motivation.

In addition to the above findings, participants also reported the following reasons as their motivation for taking up a musical instrument:

- S1: "*Recovery from an emotionally challenging event has been strongly assisted by the social and psychological benefits of the music program*".
- S2: "*Piano is my life and I often think about taking some time off from my full- time job to pursue piano full time*".

- S3: "*The orchestra was commencing and they needed bassoon players hence the main reason I took it up*".
- S4: "*Positive social and musical aspects in an ensemble are important*".
- S5: "*Fun, community and wellbeing. Would like to learn better piano to accompany fun singalongs, not for 'perfect' performance*".
- S6: "*I took up the viola so that I could join the Darwin Symphony Orchestra, i.e. a desire to play symphonic music with others, rather than solo instrument*".
- S7: "*I've always played or tried out music instruments since learning to play the piano from late primary school years*".
- S8: "*Employment opportunities, supports other musical interests (composition and work as a music therapist)*".
- S9: "*I want to improve my music skills to be able to share it with others – used to lead a small choir*".
- S10: "*Continue participating in vocal activities, having conducted and been in choirs for most of my life*".
- S11: "*Combining voice and an instrument*".
- S12: "*Pure enjoyment*".
- S13: "*Strategy to deal with grief*".

4.4 BENEFITS

The second section of the questionnaire required participants to select their responses to specific statements that relate to beneficial outcomes from learning or practice of a musical instrument.

A substantial majority (37% SA; 49% A) agreed that they had perceived an improvement in their confidence and sense of self-esteem.

In addition, a large majority of participants (59% SA; 41% A) were satisfied that learning a musical instrument had enhanced their appreciation of music. It is worth noting there were no other responses to this statement that clearly indicated that appreciation of music represents a significant outcome. It was not possible in this instance, to determine whether their musical enjoyment related to the aural or executive skill (technical) aspect because the statement did not specify a measure.

Another positive outcome of the engagement with music-making that adult music students, and amateur musicians had experienced (and reported), was the improvement in their level of their ability to concentrate (32% SA; 58% A).

As reflected in the responses, the opportunity to socialise was very important to the majority of the participants (28% SA; 60%A). One of the more enjoyable aspects of music-making is undoubtedly the sharing of the experience and being able to interact with like-minded individuals.

The vast majority of the participants (41% SA; 53% A) felt that music as an art-form can provide an outlet for creativity and self-expression. In addition, 80% (37% SA; 43% A) indicated that their involvement with music provided a spiritual and uplifting experience.

All (62% SA; 38% A) participants also agreed that engaging and participating in musical activities had enhanced their emotional well-being. There were no other responses recorded relating to this statement.

4.5 KINAESTHETIC IMPLICATIONS

4.5.1 Sense of movement

A series of statements were set up to determine the level of awareness that the participants had experienced with regard to their sense of movement and coordination when playing their chosen instrument or singing.

In response to the statement about being conscious of the parts of the body that are activated in playing an instrument or singing, a significant majority 91% (31% SA; 60% A) of the participants believed that this was applicable.

However, when asked to rate their movements, nearly half (42% NAND) were unable to say whether their movements were well co-ordinated and effortless. Other responses recorded were in the negative (15% D) with only approximately a third (29% A) in agreement with the statement.

Participants were then asked to respond to the statement that there was no accumulation of tension in their playing or singing. There was a mixed reaction to this issue where responses were fairly evenly distributed across the scale (40% A; 21% NAND; 31% D).

4.5.2 Self-awareness and control of muscles

In response to the statement regarding the participants sense of self-awareness and control of muscles, it is encouraging to note that 96% (59% SA; 37% A) of the participants reported they were aware that playing a musical instrument or singing requires control of specific muscles in the body.

The same cohort also revealed that 92% (35% SA; 47% A) thought about the ways in which they use their muscles to perform the task.

Sixty-three percent (8%SA; 55% A) of the participants agreed that they were in control of the muscles when playing or singing; a quarter (25% NAND) were undecided.

4.5.3 Sense of balance

Posture plays an important part in the performance of a musical instrument and in singing. On a positive note, 84% (28% A; 56% SA) of the participants agreed that they were aware of their posture and maintained good alignment when playing or singing. In spite of this observation, the majority (63% NAND; 10% D) could not confirm that their overall sense of balance had improved.

4.5.4 Joint mobility

To the statement concerning their joints being free and released to allow efficient movements, participants were divided in their response (36% A; 32% NAND; 14% D).

When asked if playing a musical instrument had enhanced their flexibility, a majority (42% NAND; 16% D) were not convinced of an enhancement.

4.5.5 Physical well-being

About half (48% A) of the participants expressed a belief that they use their bodies in the most efficient manner in playing an instrument or singing. Those who were undecided or disagreed made up the rest (26% NAND; 16% D). This finding is almost consistent with responses to the previous statement.

When asked to rate if their overall physical well-being had improved participants expressed differing views (36% A; 46% NAND).

4.5.6 Kinaesthetic perception

The last statement asked participants if they felt their kinaesthetic sense had improved as a result of musical intervention, to which more than half (22% SA; 50% A) agreed.

Participants provided additional information with regard to other outcomes they have experienced. They offered their observations as follows:

- S1: "*Improved connectedness with the music community; my experience has been a lot of fun; early days but I am already improving my technique and quality of musicianship; exposure to different music genres such as jazz and swing*".
- S2: "*Development of teamwork skills when collaborating with others*".
- S3: "*Definite release of stress*".
- S4: "*I also feel that there have been many other cognitive benefits that go beyond the range of the statements above (in the questionnaire) "*.
- S5: "*I have learnt to do something that has always been a life dream*".
- S6: "*I feel a sense of achievement and fun when playing music with others*".
- S7: "*Definitely the social benefits*".
- S8: "*I have become more aware of my skill and hope to use it on a spiritual dimension*".
- S9: "*Supporting others who are learning*".
- S10: "*A plus for oneself when compared with others, therefore uplifting in spite of negativism from others*".

- S11: "*I enjoy the spiritual and emotional space the music takes me to, both hearing and attempting to play it*".

4.6 RESULTS FROM INTERVIEWS

For this study, I was able to interview seven participants to whom I will refer as 'P1' to 'P7'. Participants discussed their motivation for engaging in music learning, benefits they have experienced and finally their perception of kinaesthetic awareness. A sample of the interview questions is attached as Appendix X. In a similar set up to the questionnaire, the interview focussed on three main aspects:

- Motivation
- Benefits
- Kinaesthetic awareness

Results will be in the form of a narrative, supported by quotes from the participants. In the following discussion, I have made use of the present tense where I believed appropriate, to describe situations that are current and existing.

4.7 MOTIVATION

In responding to the subject on music appreciation and enjoyment, participants reported their love of music, the pleasure of music-making and personal interest as their source of motivation.

Among the comments were:

- P2: "*It was a voice that I could make*"
- P5: "*Music is my main soul food*"
- P5: "*Just being able to play …it's satisfying …the joy of coming to lessons*"
- P6: "*I like singing*"
- P7: "*I play for the fun of it*"

A desire to fulfil a life-long ambition was a motivation for P4 who had a childhood dream to play the piano.

Learning new skills was important to P3 who feels that she is now at an age where she feels it is acceptable to ask questions and not feel embarrassed:

> "*It is a release in a way that you have permission not to be right about everything…there's never an end to learning*".

A sense of curiosity and thirst for new knowledge motivates P3 who at age 70, has started voice lessons! She adds "…*there is so much more for me to learn*".

P4 cites keeping up her music skills "…*and not for them to go rusty*" as her motivation whereas P5 feels that she is motivated to regain previous skills so that she can "…*reclaim the absolute joy I had particularly as a younger person*" in playing the piano.

P7 also looks back at her history and previous experience with music and is keen to redevelop her skills. In addition, she feels that playing the piano has improved her memory, thereby verifying the statement that training concentration and attention contributes to healthy brain functioning.

Consistent with results from the questionnaire, participants interviewed also agreed that a need for social interaction motivates them in their musical pursuits.

Being involved with music brings opportunities to play in an orchestra or ensemble and sing with a group. P4 recalls her success at starting a band in response to a need to provide music jam sessions for seniors. She is still actively involved in the band activities.

Indicating her enthusiasm of sharing music with others, P3 feels motivated to go and sing for the residents in nursing homes. P3, P4, and P6 sing in the 'Seniors' choir that is regularly involved in public events and performances.

For P1, a need for someone to play the pipe organ in church provided the motivation to learn the instrument. Later in her life, she took up the viola because there was a shortage of viola players in the local symphony orchestra.

P2 who currently plays in the same orchestra also took up the viola for the same reason and became the first viola player in the youth orchestra in the town where she grew up. This musical involvement had a significant impact on her daily life besides providing the motivation for her to keep up with her practice.

For P6 who had previously been involved in barbershop singing, the motivation came from an opportunity to fill a vacancy and lead a male vocal group in the new town to where he had moved.

Family members can play an important part in motivating music students. P2, P3 and P6 reported that from their early years, they had always felt encouraged by their parents who instilled in them a love of music.

For P5, motivation comes from the support of her partner who appreciates her skills and loves hearing her play the piano!

From the responses, all seven participants seemed to be motivated because they were finally doing something for themselves. For P7, a few life changing events motivated her "…to get back something for herself" so she resumed piano lessons after a break of thirty-five years.

4.8 BENEFITS

I asked the participants what outcomes they have experienced from their engagement with music and or the learning process.

"Financial benefit" was an unexpected response from P1 who indicated that she gives music lessons part-time and plays in the community orchestra.

In terms of confidence and self-esteem, P7 affirms that playing the piano has improved her memory and given her more confidence. P4 adds "…*when you get older…how important it is for your memory and to keep the brain active just concentrating on the music*".

P2's response was "…*music made me feel worthwhile. It actually gave me a security through all that teenage young adult life. The acoustic and people energy helped me through some difficult times and kept my spirit alive"*.

P3 agrees – "…*singing just makes you joyful, it lifts my spirit tremendously. You come to singing and you feel really good afterwards*".

The same sentiment is shared by P4:

"…*you just feel really uplifted, it has just been valuable with your self-esteem and keeping a positive outlook. When you are feeling down or there's something you're battling with, you come to choir and you start singing and you just leave on a high*".

Cognitive benefits: P1, P3, P4, and P7 reported that their concentration level had improved because of their musical activities. P1 added that regular practice on her instrument had instilled attentiveness and discipline in her life. She maintains, "*I have good discipline and concentration because I've practised all my life*".

P3 reported that her hearing had improved considerably after she had been singing with the choir for a while. Before she joined the choir, she was unable to participate in social conversation because she was having difficulty in hearing people talk. Her friends remarked that perhaps her exposure to musical sounds had made a profound effect on her aural perception, an observation with which P3 wholeheartedly agrees.

With regard to social benefits, most participants agreed that the social aspect of music plays a very important part of their lives. Being able to get together with a group of like- minded individuals to create music provides a sense of camaraderie, a sense of purpose, of contributing to society. Responses to this statement were mostly enthusiastic:

P1: "*Friends*"

P2: *"…I always come home (from orchestra practice) feeling better*"

P3: "*…secured friendships, provides a liaison in the community*"

P4: "*…making friends with music, doing lots of things that you won't normally do, getting you out, getting satisfaction from others saying how valuable the music jam activities are…*"

P5: "*…interacting with a professional musician…*"

P6: "*…the ability to sing with others and go to different conferences, I came to meet up with so many people…*"

From an emotional aspect, P3 and P4 reported that they "…get an uplift" every week when they attend choir practice. Both agree that loneliness and isolation can affect one's mental health. By engaging in musical activities, they have a reason to go out and socialise. In this respect, music has a positive effect on their physical and emotional well-being.

4.9 KINAESTHETIC IMPLICATIONS

In the last part of the interview, I asked participants about their kinaesthetic experience in playing and singing. I wanted to find out if they were aware and had control of the muscles (in the arms, face, chest and back) they were using in their instrumental practice and performance. The general response was that they had not received any instruction on body and muscle use in their earlier training.

All participants felt that they would have benefitted from learning about body awareness and having access to the appropriate information from the outset.

P1 reported that her initial music lessons did not include instructions on proper muscle use and the application of well-coordinated body movements to play the instrument. This lack of care may have led to unnecessary pressure being applied to her back.

P2 has always had an interest in body movements even though her lessons did not include kinaesthetic awareness and use. She believes that having access to this facility would make a difference to one's performance adding that, "*…when I am upset and there is tension in my body if I play, it doesn't sound (good)*".

She admits that she is only aware of her muscle control and movement during the periods when she is practising. In a performance, focus shifts to the music so her concentration is on phrasing and expression instead of body movements.

P3 who has started singing lessons, feels fortunate to be able to experience the benefit of learning proper use of body and muscle control. In her words,

"Being taught how to use the body and muscles within context makes it meaningful. I'm aware when I'm singing about holding in those tummy muscles; I'm becoming aware all the time of all sorts of things. That's beneficial too in the long run".

For P4, there are many things on which to focus during a performance. As a result, she is not necessarily aware of her movements. However, she believes that training body movement needs more attention. "*It needs to become second nature, you know exactly how you stand, how you hold your instrument…*"

P5 revealed that she is not conscious enough of her body in playing the piano: "…*we don't think of the importance of muscles*…"and suggests that instrumental music education could include teaching the 'correct hand shape, movements involved, where the body is in space, how to use the muscles and how they work'.

"*Occasionally, I am very aware of where my hand is over the notes*". She now takes time to be mindful and focus on the act of playing - not just learning the notes but how to play them. Importantly, being aware of balance and posture has opened new perspectives for this piano student.

P6 reported no previous training in body awareness or any instruction in how the voice mechanism works and therefore feels that he has no control over the use of muscles in his singing. "*I would need intensive individual tuition to be able to change voice qualities in an instant*", referring to the different voice qualities like speech and opera.

After a break of 35 years, P7 resumed piano lessons and stressed that she was shocked at this discovery: "*I could not move my fingers much at all across the keys. My fingers just wouldn't get around them*".

P7's response to the question on kinaesthetic awareness reflects the beneficial outcomes she has experienced and believes that "*physically, it's changed what I can do*". She feels more aware of her posture as her kinaesthetic sense has improved and is amazed that her fingers are now able to respond to instructions.

P7 added that there is a significant improvement in her technical ability, an outcome that she credits to being more attuned to her body.

4.10 OTHER CONSIDERATIONS

P3 was keen to share some insights from her experiences with music and explained how she had applied it in her class of students who were learning English as a second language. She found that when words were set to a song, the students were able to retain information more efficiently as they learned to sing the words.

Music was also instrumental in helping P3's friend who had an impairment to memorise vital information so that she could remember her address. The words were set to a song and taught to her to sing.

P3 also commented on the soothing effect of the sounds of music, particularly on a resident in an aged care facility who would stop crying upon hearing her sing. On the other hand, a resident who had not spoken for months was moved to utter some words in response to hearing a familiar song sung to him.

The results hitherto have been predictable and as anticipated. However, results from the interviews also included some deviant comments for consideration. From a negative aspect, participants who played instruments revealed ageing concerns and impediments, particularly arthritis in the fingers, recorded as follows:

- P1: "…*I can't play like I used to play, my fingers just won't do what they used to do*".
- P5: "…*it's not always comfortable to do things*".

One must assume that other participants who chose not to disclose any unfavourable conditions might also experience similar problems. In this respect, it is worth noting that the survey did not require responses to statements other than those concerned with beneficial outcomes from engaging in music activities.

4.11 CONCLUSION

A total of 50 responses were recorded to the online questionnaire representing approximately a third of the study population (estimated at 140) and 7 participants were interviewed. Even though the study was conducted on a small scale, I conceded that the response rate recorded was an acceptable and fair representation.

The following chapter presents a discussion of the results in relation to the research questions investigated, their implications, and comparison with existing research as reviewed in the literature. In addition, the significance of my study and recommendations for further research will be discussed.

CHAPTER 5

DISCUSSION

5.1 INTRODUCTION

The topic of recreational music-making by adults is an area that continues to receive much interest and provides the basis for this research project. An online survey and face-to-face interview sessions were used to collect data to answer questions pertaining to the motivations of adult music students and beneficial outcomes derived from their music-making. However, my investigation goes a step further by asking whether the benefits include a better kinaesthetic awareness. Framing this last question allowed the possibility to ascertain whether adult students in my survey had received instruction in body-position and movement awareness during the course of their instrumental lessons. This chapter discusses the significance of the findings and draws together outcomes from the research data and literature reviewed. The implications of the findings are also discussed with reference to the research objectives.

5.2 DISCUSSION OF RESULTS

The findings from this study suggest that adult music students are motivated mainly by the following factors:

- An appreciation and enjoyment of music;
- A desire to fulfil a life-long ambition made possible by the availability of time and resources at this stage of their lives;
- A desire to learn new skills and keep the brain engaged;

- The relaxation and stress relief that music making offers;
- Opportunities for social interaction;
- An enhanced emotional well-being.

These results are consistent with results from previous research on adults who engage in learning to play a musical instrument or sing. As expected, the motivating factors have close links to the beneficial outcomes that participants derived from their musical activities (Brown, 2000; Dawson, 2014; Hallam, 2002; Hays & Minichiello, 2005; Johnson, 1996; Wristen, 2006).

One of my research questions concerns benefits associated with an improved awareness of the body including a better sense of movement, posture, balance and efficient use of the body. Playing a musical instrument or singing requires fine motor control combined with an acute kinaesthetic sense. It involves the coordination of muscles and joints moving in tandem with the instrument. In singing, it involves control of various muscle groups in the face, larynx, abdomen and back.

A novel finding in my study relates to participants' views on kinaesthetic implications in playing their chosen instrument or singing. The results show a rather incoherent picture because responses to statements in the questionnaires do not always complement each other. A significant majority of participants (91%) in my study reported being conscious of their body parts involved in playing an instrument or singing but their movements were not well-coordinated. The same cohort were aware that the activity requires control of specific muscles in the body, yet they may not necessarily make use of their bodies in the most efficient manner.

We should not dismiss the fact that some adult students may be beginners who have not had the time to progress and experience significant changes in their executive skills (technique).

Nevertheless, this observation is significant because it provides a clue to what is missing from the instrumental music lesson and begs this question:

"Are students being taught how to play their instruments or sing by developing their kinaesthetic awareness so that they can learn efficient muscle use and optimal skeletal balance and alignment?"

These three fundamental components (kinaesthetic awareness, efficient muscle use and optimal skeletal balance and alignment) constitute an efficient technique that is not only sustainable; music making then becomes a holistic experience (Lister-Sink, 2005).

It is worth noting that two components are implicated in the statement above. Developing one's kinaesthetic awareness to sense and control muscles and joints is the underlying issue in this study. Teaching an efficient and healthful technique, one that is based on sound biomechanical principles (Lister-Sink) is equally important and needs to be given more attention.

Studies on kinaesthetic implications in musical instruction are limited (Galvao & Kemp, 1999; Ohrenstein, 2003; Woodard, 2009) and suggest that more research into this field is required. In response to this need to fill a gap, the recent development of Body Mapping techniques has made it possible to train students to develop self-awareness skills resulting in a better quality of movement and alignment (Buchanan & Hays, 2014; Woodard, 2009).

A third of the participants (75%) in the survey and all 7 participants interviewed reported that they were open and receptive to information on body awareness, well-being and healthcare regarding their playing and vocalising techniques. All the participants interviewed were emphatic that they would have benefitted from learning about body awareness and having access to the appropriate information from the outset. Only one participant interviewed who is currently taking vocal lessons is being instructed in proper body use through kinaesthetic awareness.

The responses to statements on kinaesthetic implications were varied and inconclusive. In this respect, my findings are congruent with the views of Shan and Visentin (2010) and provide evidence to support the proposition that in the training of instrumental music students, kinaesthetic awareness is often understated or disregarded and therefore not applied to posture and body use.

From a technical perspective, practising and playing using inappropriate movements is likely to cause stress leading to injuries as evidenced by problems faced by musicians (Ackermann, 2010; Hochberg, 1983; Norris, 1993; Rosen, 2002). The proliferation of studies that deal with musicians' problems point to the possibility that there is not enough information about injury-preventive techniques and body awareness in their training. Baader et al (2005) lamented the fact that there is not sufficient information about the role of tactile and kinaesthetic cues in playing musical instruments. My research lends support to the notion that musical proficiencies rely on kinaesthetic perception, a sensory skill that can be developed.

Data from this research suggests that specific steps could be implemented by music institutions. Locally, the CYCM could take the lead in providing body education programs for tutors and students. This focus on healthcare and well-being would benefit not only the adults but all students would have access to information that was not previously available. In support of my stance, Foxman and Burgel (2006) confirmed a need for the dissemination of accurate information to prevent injuries and proposed the Alexander Technique and Body Mapping as important tools to apply in the instruction of music.

Given the skills to move and play well, adult students will feel motivated to continue their musical activities throughout their lives. These skills can be applied to other daily physical activities. If we know how much effort is required for an activity, we do not need to put unnecessary stress on our bodies. As an example, we only need to exert the minimum effort in holding our instruments. In non-musical activities, we can use our kinaesthetic sense to inform us if we are gripping our pens, cups or steering wheels with extra force causing unnecessary stress on our muscles.

Other findings from this research provide information on the characteristics of potential adult students and their specific needs. A typical adult student aspires to learn for fun and enjoyment of the activity, maintain or improve current level of skill, music appreciation and learn advanced repertoire. Therefore, it can be assumed that preparing for and undertaking music examinations may not appeal to most of the participants. This finding is contrary to what J.E. Brown (2000) postulated; that adult music students are motivated to attain certain qualifications such as the Australian Music Examinations Board certifications.

This anomaly may be attributed to the study population and the institution where Brown's study was conducted. It is worth mentioning that these students to whom Brown was referring were being taught at a conservatorium setting. My speculation and personal experience is that students who enrol at such an institution would have set higher goals for themselves.

Participants (40%) in my study may not necessarily have an interest in attaining music qualifications, but more than half (57%) of them were interested in opportunities to perform and socialise. Consistently, researchers have confirmed that the social aspect of music is valued by adult music students (Varvarigou et al, 2013; Creech et al 2013; Hays, 2005). The benefits derived include a sense of belonging, participating, sharing and giving making one feel empowered and valuable to the community. Furthermore, the feeling of loneliness and isolation is mitigated, a finding consistent with Hays (2005). This statement was emphatically declared by 2 participants whom I interviewed; both were in the 70–80 age group.

Achilles (1992) insightfully identifies the mature adult student as a self-assured and competent individual who has set goals although the outcome may not be readily acknowledged and accepted. Similarly, results from other studies confirm that adult students come with a plan of what they would like to achieve and often wish to be involved in making decisions about their musical education (Orlofsky & Smith, 1997). Rohwer (2005) and Bowles (1991) suggested that careful consideration should be given to how adult music students are taught.

In response, Perkins et al (2015) demonstrated how student-teachers in their project adopted a different mindset in dealing with older adult students to address their needs and motivations.

As discussed above, this cohort of students may come with high expectations that will require careful and sensitive management by their tutors. In order not to discourage these students, tutors need to be aware of the limitations if any, of their older students and set realistic goals at a level appropriate to each student. The implication is that tutors need the skills to deal with these issues effectively. Even when music making is merely a recreational activity, careful attention should be given to the selection of repertoire. The importance of choosing the right music was also emphasised by J.E. Brown (2000).

> *Duke Ellington, composer and bandleader reminds us that "the wise musicians are those who play what they can master"*
>
> (Klickstein, 2009, p. 14).

Time management presents another challenge in that adult students will have personal or medical commitments that may interfere with their lesson schedules, a fact of life that was discussed in an interview with a participant.

A degree of understanding and patience is required as these commitments will often take priority. Therefore, tutors who work with an older adult student need to understand that progress may be not be as evident as they would like. They should also be prepared to accept that in most cases, the student's motivation is the sheer enjoyment of the activity.

In providing feedback, the tutor may need to show patience, enthusiasm and support keeping in mind the student's motivation.

Another factor that may impede a student's progress is a slower response rate to directions; a fact of life that might prove frustrating for some. This condition may be presented by older students who experience physical difficulties in their movement patterns.

On the other hand, mature adult students with previous music training may find it a struggle to break old habits that are impeding their progress because their movement patterns have become ingrained.

Orlofsky and Smith (1997) pointed out that adults may encounter problems in certain physiological, psychological and logistical areas. J.E. Brown (2000) cautioned that both the physical and emotional aspects need to be considered when structuring the training of these students. As discussed in the literature review, there are opposing views on this issue with some arguing that this viewpoint is unhelpful and discouraging to older adults (Forrester, 1975; Varvarigou et al., 2013).

The only two comments (from my study) relating to physical difficulties pertained to arthritic conditions experienced and the observation that movements were not always comfortable for the participant. The conclusion we can draw from this discussion is that not all adult students are necessarily affected by physical health issues because each person is unique and will age according to one's lifestyle and beliefs.

As discussed in the literature review, Hanna (1988) argues that people who equate ageing with degeneration are giving their bodies the excuse to bring on the process whereby structures break down and functions are lost (Hanna, 1988).

My view is that learning to play a musical instrument or singing provides an opportunity to develop good body alignment and movement co-ordinations that can contribute to one's physical well-being. The associated benefits are maintenance of brain function and cognitive skills; cited as one of the motivating factors by participants. The findings from the current study (86% of participants surveyed and 4 out of 7 interviewed) support the statement that the brain needs constant stimulation and add to the body of evidence in favour of music engagement by the mature adult students. Findings also support the growing body of literature that documents the impact of music on the brain as it engages various faculties to respond to notation and perform associated movements to produce sounds (Altenmüller et al., 2000; Andreasen, 2005; Koelsch, 2013; Schulkin & Raglan, 2014; Weinberger, 1999).

The application of music as therapy by participants deserves comment. Data from the study showed that all participants (100%) were aware of the healing qualities of music and associated benefits. An observation was reported by a participant in an interview who claimed that her hearing had improved considerably after she had been singing in a choir for a length of time. It is possible that constant exposure to musical sounds has had a profound effect on her aural perception.

Relaxation, stress relief, emotional stimulation and overcoming depression and grief were reported as beneficial outcomes adding to the notion that music has therapeutic qualities. Another benefit reported was the spiritual aspect that music accorded, lending support to previous studies (Hays & Minichiello, 2002; Pierce, 2012) . The inference is that music has a transcendental nature that can invoke our inner essence and touch the soul.

It is worth mentioning some insights I recorded regarding the use of music as a teaching tool. A participant who was teaching English as a second language to adult migrants reported that students found it easier to learn the language through songs. Singing was also used by her friend (who had developed amnesia) as an aid to retain information. Both statements support the notion that music and language are closely linked and processed by the brain in shared areas and neural networks, as discussed in the literature (Brown et al., 2006; Patel, 2003).

In her music ministrations at a nursing home, the same participant observed how music could stimulate a response from a resident who had not spoken for several months. In the same way, it can be argued that music has the power to soothe an agitated person. These findings are certainly not new but concur with results from previous research into the application of music in different environments including clinical and rehabilitative settings (Koelsch, 2013; MacDonald, 2013; Schneider et al., 2007; Thompson, 2015).

5.3 LIMITATIONS

The results from this study have provided data on the profile of adult music students, their motivations together with perceived social and personal benefits but it has some limitations. The study population may have been small but a broad spectrum of participants was surveyed.

Furthermore, participants are at various stages of their training; some have been learning for a longer period and would be able to report a different set of values. To the statement about enhanced physical well-being, we cannot exclude the possibility that participants may already be leading an active lifestyle and engaging in non-music activities that are keeping them physically fit and healthy. Music-making is therefore providing additional benefits to this cohort.

Another limitation pertains to the vast difference in the ages of the participants. The results may have been more reliable had I increased the age limit of participants to fifty instead of thirty years and above.

The genre of music is restricted to western classical music and does not include instrumental music of other cultures. However, it is possible to replicate the process of this research in a similar setting dealing with the practice and performance of music from a different culture. Finally, the inclusion of community musicians in the research is another factor that may raise concerns about the validity of the results.

Nevertheless, this research makes an original contribution to the teaching of music to adults at Darwin in the Northern Territory of Australia because no research has previously been conducted on this cohort of students.

From a pedagogical perspective, results from the study suggest that adult music students need to be informed about kinaesthetic awareness and efficient use of their bodies in playing musical instruments and singing. As adults continue to seek out music-making opportunities, those who provide access to music education have an obligation to ensure that accurate information is available and effective teaching strategies are in place.

At an international level, my research joins the discussion of performing arts healthcare that is an ongoing issue. Mind and body health are new paradigms that need to form part of the teaching and practice of music in any musical institution. Music-making is enjoyable, but it must be sustainable even more so for older adults who engage in learning for the sheer joy that music brings into their lives.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The results from this research show that adult music students in Darwin, Northern Territory in Australia are motivated by a range of factors ranging from needs of an intrinsic to those of an extrinsic nature. The reasons cited included personal satisfaction, desire to maintain physical and cognitive well-being, need for relaxation and social interaction. These reasons are closely linked to the perceived beneficial outcomes in terms of an improved sense of self-esteem, spiritual, cognitive and health benefits and overall well-being. A significant finding as reported by the majority of participants (91%) was an awareness of their body use in playing an instrument or singing but felt their movements were not well-coordinated.

From a pedagogical consideration, this finding suggests that all music students, young and old may benefit from being trained to apply kinaesthetic awareness in their practice and performance that would also incorporate proper body alignment and good coordination. This knowledge may possibly help to make technique more sustainable and prevent injuries while students fulfil their other motivations for engaging in musical activities.

6.2 RECOMMENDATION FOR FURTHER RESEARCH

The answers to the research questions have provided an insight into the state of instrumental and vocal music education in the NT. Adult music students may come with similar motivations and experience similar benefits but their needs may be different.

As a consequence, their training should be carefully tailored to suit their specific goals and individual needs. Furthermore, this study also revealed that students have not necessarily been exposed to training that incorporates application of their kinaesthetic sense.

One of the implications from this study is that there is possibly a gap in the teaching of instrumental music. However, to verify if current teaching methodologies include instruction on kinaesthetic awareness and proper use of the body, a larger scale study aimed at music tutors nationwide would generate a more conclusive result.

Further research could investigate ways in which current teaching methodologies could incorporate the instruction of efficient body use, including an awareness and control of muscles and joints.

6.3 RECOMMENDATION FOR MUSIC PROVIDERS IN THE NT

Music providers in the NT could consider ways to incorporate novel teaching methodologies that take into consideration the physical capacities of the adult student. Programs that train students to develop their kinaesthetic awareness are valuable in instrumental music teaching especially at the start of their education. It is never too late to provide the same learning opportunities for adults. This exercise would provide added benefit by helping them to ''re-connect" with their muscles and joints. It would be akin to a re-attuning of the body at a crucial time of their lives.

The Alexander Technique is highly recommended as a "…simple and practical method for improving ease and freedom of movement, balance, support, flexibility and co-ordination…" (Conable, 1991, p. 1). Through the technique, students learn a way to work with the body in a more kinaesthetically attuned manner possibly enhancing their performances because the whole body is involved in the process.

To reinforce these new concepts, tutors could tap into various resources. A typical example is a video camera to record the lesson for students to view at their leisure. In many instances, not all information from the lesson may be absorbed and retained. The recording provides a reminder of the instructions and strategies students should adopt while performing their private practice.

Tutors may also consider asking their adult students to write a synopsis of the lesson through which the students can reflect on the important points covered.

In my experience, this practice has proved to be a valuable aid to the learning process. Adults may take to these steps more readily because it provides an opportunity to engage in their lessons in a more meaningful way. It is assumed that students who are motivated would commit the time required for self-reflection and improvement.

On the other hand, it may be argued that these students may feel there is too much work involved should the tutor choose to implement these methods. It would then be the tutor's responsibility to provide guidance and advice.

Self-recording in which the student records a performance of their piece also provides huge benefits by providing feedback on tone quality, rhythmic accuracy, phrasing and articulation.

> "*There is nothing more fatal for our musical sense than to allow ourselves-by-the hour-to hear musical sounds without really listening to them.*"
>
> Tobias Matthay, pianist (Klickstein, 2009, p. 16)

The above statement is reminder for tutors to impress upon their students the importance of critical listening and to develop this aural skill.

Explaining to students how they should approach practising on their instruments is a crucial step in the learning process and applicable to students of all ages. Artful practice is advocated by Klickstein (2009) who provides creative and effective strategies for practising. More importantly, older students may need to be reminded to take breaks regularly, be aware of their movements and guard against improper use of muscles and joints.

A simple beneficial teaching aid in any learning studio is a full-length mirror to provide visual feedback in helping students to check and correct their posture, stance and to monitor movement habits.

In addition, anatomical charts showing the larynx, muscles and joints, bones of the arms and hands are useful teaching aids. It may come as a surprise that some students have no idea what the bones of their hands look like! How many students who are learning to play an instrument know that the human hand consists of 27 bones and 36 muscles and that the wrist joint consists of a series of 8 bones? A model of a skeleton with flexible parts is useful to illustrate how the joints work. Similarly, the model of a larynx with movable parts can be used to demonstrate how the voice mechanism works.

For other students, access to instruments in good working order is necessary to minimise discomfort and stress on the body. Adjustable piano benches are required to allow proper alignment of the arms at the keyboard.

These recommendations can be implemented by any music institution, but the first step is to provide appropriate training for the tutors so that music instruction encompasses a holistic and wider dimension.

REFERENCES

Achilles, E. (1992, 12//). Finding meaning in music for all ages, Editorial, *Music Educators Journal,* p. 21. Retrieved from http://ezproxy.cdu.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,uid&db=aph&AN=9705190601&site=ehost-live

Ackermann, B. J. (2010). Therapeutic Management of the Injured Musician. In R. B. Sataloff, AG; Lederman RJ (Ed.), *Performing Arts Medicine* (3rd ed.). USA: Science & Medicine Inc.

Altenmüller, E., Gruhn, W., Parlitz, D., & Liebert, G. (2000). The impact of music education on brain networks: evidence from EEG-studies. *International Journal of Music Education*(1), 47-53.

Altenmüller, E., & Jabusch, H.-C. (2009). Focal hand dystonia in musicians: phenomenology, etiology and psychological trigger factors. *Journal of Hand Therapy, 22*(2), 144-155. doi: https://doi.org/10.1016/j.jht.2008.11.007

Amaral Corrêa, L., Teixeira dos Santos, L., Nogueira Paranhos Jr, E. N., Minetti Albertini, A. I., do Carmo Silva Parreira, P., & Calazans Nogueira, L. A. (2018). Prevalence and Risk Factors for Musculoskeletal Pain in Keyboard Musicians: A Systematic Review. *PM&R, 10*(9), 942-950. doi: doi:10.1016/j.pmrj.2018.04.001

Ananda-Owens, K. (2013). [Letter to the Editor]. *Medical Problems of Performing Artists, 28*(3).

Andreasen, N. C. (2005). *The Creating Brain: The Neuroscience of Genius*. NY, USA: The Dana Foundation.

Baader, A. P., Kazennikov, O., & Wiesendanger, M. (2005). Coordination of bowing and fingering in violin playing. *Cognitive Brain Research, 23*(2-3), 436-443. doi: 10.1016/j.cogbrainres.2004.11.008

Berenson, G. (2002). The Role of the Teacher if an Injury Should Occur. In K. Kropff (Ed.), *A Symposium for Pianists and Teachers: Strategies to Develop the Mind and Body for Optimal Performance*. USA: Heritage Music Press.

Bernard-Lovell, R. (1986). *Adult Learning* (P. J. Hills Ed.). UK: Croom Helm.

Boswell, J. (1992). Human Potential and Lifelong Learning. *Music Educators Journal, 79*(4), 38-80.

Bowles, C. L. (1991). Self-expressed adult music education interests and music experiences. *Journal of Research in Music Education, 39*(3), 191-205.

Brandfonbrener, A. G. (2010). Etiologies of Medical Problems in Performing Artists. In R. T. B. Sataloff, A.G. & Lederman, R.J (Ed.), *Performing Arts Medicine* (3rd ed.). USA: Science & Medicine.

Brown, J. E. (2000). *I'm doing this for myself: experiences of adult students in the continuing education program at the Central Queensland Conservatorium of Music in Mackay*. Paper presented at the Lifelong Learning Conference.

Brown, S., Martinez, M. J., & Parsons, L. M. (2006). Music and language side by side in the brain: a PET study of the generation of melodies and sentences. *European Journal of Neuroscience, 23*(10), 2791-2803. doi: doi:10.1111/j.1460-9568.2006.04785.x

Buchanan, H. J., & Hays, T. (2014). The Influence of Body Mapping on Student Musicians' Performance Experiences. *International Journal of Education & the Arts, 15*(7).
Bugos, J. A. (2014). Adult learner perceptions: Perspectives from beginning musicians (ages 60–86 years). *Update: Applications of research in music education, 32*(2), 26-34.
Carson, D. (2016). Changes in net interstate migration (NIM) patterns to the Northern Territory: volume, geography and basic demography.
Chen, J. L., Penhune, V. B., & Zatorre, R. J. (2008). Moving on time: brain network for auditory-motor synchronization is modulated by rhythm complexity and musical training. *Journal of cognitive neuroscience, 20*(2), 226-239.
Clift, S., & Hancox, G. (2010). The significance of choral singing for sustaining psychological wellbeing: findings from a survey of choristers in England, Australia and Germany. *Music Performance Research, 3*.
Conable, B. (1998). *What Every Musician Needs to Know about the Body*. USA: Andover Press.
Conable, B. a. C., W. (1991). *How to Learn the Alexander Technique: A Manual for Students* (3rd ed.). USA: Andover Press.
Cooper, T. L. (2001). Adults' perceptions of piano study: Achievements and experiences. *Journal of Research in Music Education, 49*(2), 156-168. doi: 10.2307/3345867
Creech, A., Hallam, S., Varvarigou, M., McQueen, H., & Gaunt, H. (2013). Active music making: a route to enhanced subjective well-being among older people. *Perspectives in Public health, 133*(1), 36-43.
Dawson, W. J. (2014). Benefits of Music Training Are Widespread and Lifelong A Bibliographic Review of Their Non-Musical Effects. *Medical Problems of Performing Artists, 29*(2), 57-63. <Go to ISI>://WOS:000337651600002
Dingle, G. A., Brander, C., Ballantyne, J., & Baker, F. A. (2013). 'To be heard': The social and mental health benefits of choir singing for disadvantaged adults. *Psychology of Music, 41*(4), 405-421. doi: 10.1177/0305735611430081
Doidge, N. (2007). *The Brain that Changes Itself*. UK: Penguin Books.
Dul, J., & Neumann, W. P. (2009). Ergonomics contributions to company strategies. *Applied ergonomics, 40*(4), 745-752.
Ekholm, O., Juel, K., & Bonde, L. O. (2016). Music and public health–An empirical study of the use of music in the daily life of adult Danes and the health implications of musical participation. *Arts & Health, 8*(2), 154-168.
Eric Wallace, M., & Derek Klinge, M. (2016). Musculoskeletal Pain in Trombonists. *Med Probl Perform Art, 31*(2), 87-95.
Ernst, R. (2001). Music for Life. *Music Educators Journal, 88*(1), 47-51.
Feldenkrais, M. (1990). *Awareness through movement*. USA: Harper Collins.
Forrester, D. W. (1975). Adult beginners: Music education's new frontier. *Music Educators Journal, 62*(4), 56-58.
Foxman, I., & Burgel, B. J. (2006). Musician health and safety: Preventing playing-related musculoskeletal disorders. *AAOHN journal, 54*(7), 309-316.
Franken, R. E. (1994). *Human Motivation*. California: Brooks/Cole
Furuya, S., Nakahara, H., Aoki, T., & Kinoshita, H. (2006). Prevalence and causal factors of playing-related musculoskeletal disorders of the upper

extremity and trunk among Japanese pianists and piano students. *Med Probl Perform Art, 21*(3), 112-117.
Galvao, A., & Kemp, A. (1999). Kinaesthesia and instrumental music instruction: Some implications. *Psychology of Music, 27*(2), 129-137.
Ganzini, L., Rakoski, A., Cohn, S., & Mularski, R. A. (2015). Family members' views on the benefits of harp music vigils for terminally-ill or dying loved ones. *Palliative & Supportive Care, 13*(1), 41-44. doi: 10.1017/s1478951513000564
Gibbons, A. C. (1982). Music aptitude profile scores in a noninstitutionalized, elderly population. *Journal of Research in Music Education, 30*(1), 23-29.
Greasley, A. E., Fulford, R. J., Pickard, M., & Hamilton, N. (2018). Help Musicians UK hearing survey: Musicians' hearing and hearing protection. *Psychology of Music, 0*(0), 0305735618812238. doi: 10.1177/0305735618812238
Green, R. G. (1995). *Human Motivation: A Social Psychological Approach*. California: Brooks/Cole
Haas, K. (1984). *Inside Music*. New York, USA: Doubleday and Company Inc.
Hall, S. J. (2014). *Basic biomechanics* (Seventh edition.. ed.). New York: New York : McGraw-Hill Education.
Hallam, S. (2002). Musical Motivation: Towards a model synthesising the research. *Music Education Research, 4*(2), 225-244. doi: 10.1080/1461380022000011939
Hallam, S., & Creech, A. (2016). Can active music making promote health and well-being in older citizens? Findings of the music for life project. *London Journal of Primary Care, 8*(2), 21-25. doi: 10.1080/17571472.2016.1152099
Hanna, T. (1988). *Somatics: reawakening the mind's control of movement, flexibilty and health*. USA: Da Capo Press.
Hatem, S. M., Saussez, G., della Faille, M., Prist, V., Zhang, X., Dispa, D., & Bleyenheuft, Y. (2016). Rehabilitation of Motor Function after Stroke: A Multiple Systematic Review Focused on Techniques to Stimulate Upper Extremity Recovery. *Frontiers in Human Neuroscience, 10*. doi: 10.3389/fnhum.2016.00442
Hays, T., & Minichiello, V. (2002). *The meaning of music in the lives of older people.* Paper presented at the Gerontologist.
Hays, T., & Minichiello, V. (2005). The contribution of music to quality of life in older people: an Australian qualitative study. *Ageing and Society, 25*, 261-278. doi: 10.1017/s0144686x04002946
Hochberg, F. H., Leffert, R.D. , Heller, M.D. & Merriman, L (1983). Hand Difficulties Among Musicians. *JAMA, 249*(14).
Hoppmann, R. A. (2010). Musculoskeletal Problems of Instrumental Musicians. In R. T. Sataloff, Brandfonbrener, A.G. & Lederman, R.J. (Ed.), *Performing Arts Medicine* (3rd ed.). USA: Science & Medicine.
Jain, S., Janssen, K., & DeCelle, S. (2004). Alexander technique and Feldenkrais method: a critical overview. *Physical Medicine and Rehabilitation Clinics, 15*(4), 811-825.
Jansen, E., Helleman, H., Dreschler, W., & de Laat, J. (2009). Noise induced hearing loss and other hearing complaints among musicians of

symphony orchestras. *International archives of occupational and environmental health, 82*(2), 153-164.
Jing, X. (2018). Hand and Wrist Overuse Injuries in Flutists: Physical Causes and Prevention.
Johnson, R. (1996). The adult student: Motivation and retention. *American Music Teacher, 46*(2), 16. http://ezproxy.cdu.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,uid&db=aph&AN=9705230349&site=ehost-live
Judd, M., & Pooley, J. A. (2014). The psychological benefits of participating in group singing for members of the general public. *Psychology of Music, 42*(2), 269-283. doi: 10.1177/0305735612471237
Juntunen, M.-L., & Hyvönen, L. (2004). Embodiment in musical knowing: how body movement facilitates learning within Dalcroze Eurhythmics. *British Journal of Music Education, 21*(2), 199-214.
Klein, S. D., Bayard, C., & Wolf, U. (2014). The Alexander Technique and musicians: a systematic review of controlled trials. *BMC Complementary and Alternative Medicine, 14*(1), 414. doi: 10.1186/1472-6882-14-414
Klickstein, G. (2009). *The Musician's Way: A Guide to Practice, pperformance and Wellness*. New York, USA: Oxford University Press.
Koelsch, S. (2013). *Brain & Music*. UK: John Wiley & Sons Ltd.
Kok, L. M., Nelissen, R., & Huisstede, B. M. (2015). Prevalence and Consequences of Arm, Neck, and/or Shoulder Complaints Among Music Academy Students. *MPPA, 30*(3), 163-168.
Krampe, R. T. (2002). Aging, expertise and fine motor movement. *Neuroscience & Biobehavioral Reviews, 26*(7), 769. http://ezproxy.cdu.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,uid&db=aph&AN=8575232&site=ehost-live
Kruse, N. B. (2012). Adult community musicians' self-esteem of music ability. *Research Studies in Music Education, 34*(1), 61-72.
Kumar, R. (2014). *Research Methodology - a step-by-step guide for beginners* (4th ed.). London, UK: SAGE.
Lederman, R. J. (2010). Neurological Problems of Performing Artists. In R. T. Sataloff, Brandfonbrener, A.G. & Lederman R.J. (Ed.), *Performing Arts Medicien* (3rd ed.). USA: Science & Medicine.
Lefrancois, G. R. (1982). *Psychological Theories and Human learning*. California: Brooks/Cole
Ling, C.-Y., Loo, F.-C., & Titi Rahmawati Hamedon, M. (2018). Playing-Related Musculoskeletal Disorders Among Classical Piano Students at Tertiary Institutions in Malaysia. *Med Probl Perform Art, 33*(2), 82-89.
Lipe, A. W. (2002). Beyond therapy: Music, spirituality, and health in human experience: A review of literature. *Journal of Music Therapy, 39*(3), 209-240.
Lister-Sink, B. (2005). Essential Skills for Promoting a Lifelong Love of Music and Music Making: Developing the Fundamental Skill: Healthful, Injury-Preventive Technique. *American Music Teacher, 54*(5), 19-23. http://ezproxy.cdu.edu.au/login?url=http://search.ebscohost.com/login

.aspx?direct=true&AuthType=ip,uid&db=aph&AN=16909209&site=ehost-live
Lister-Sink, B. (2007). The Lister-Sink Method Instruction Manual. USA.
Livingston, L. (2003). Motivating the Adult Student: We Shall Overcome. *American Music Teacher, 53*(2), 35-36. http://ezproxy.cdu.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,uid&db=aph&AN=11181446&site=ehost-live
Lonsdale, K., Laakso, E., & Tomlinson, V. (2014). Contributing factors, prevention, and management of playing-related musculoskeletal disorders among flute players internationally. *Medical Problems of Performing Artists, 29*(3), 155.
MacDonald, R. A. R. (2013). Music, health, and well-being: A review. *International Journal of Qualitative Studies on Health and Well-being, 8*(1), 20635. doi: 10.3402/qhw.v8i0.20635
Magill, R., & Anderson, D. (2014). *Motor Learning and Control: Concepts and Applications*: McGraw Hill Education.
Maslow, A. (1943). A Theory of Human Motivation. *Psychological Review, 50*, 370-396.
Mehling, W. E., Gopisetty, V., Daubenmier, J., Price, C. J., Hecht, F. M., & Stewart, A. (2009). Body awareness: construct and self-report measures. *PLoS One, 4*(5), e5614.
Merriam, S. B., & Kee, Y. (2014). Promoting Community Wellbeing: The Case for Lifelong Learning for Older Adults. *Adult Education Quarterly, 64*(2), 128-144. doi: 10.1177/0741713613513633
Merzenich, M. M., Van Vleet, T. M., & Nahum, M. (2014). Brain plasticity-based therapeutics. *Frontiers in Human Neuroscience, 8*(385). doi: 10.3389/fnhum.2014.00385
Milanovic, T. (2014). *Learning and Teaching Healthy Piano Technique: Training as an Instructor in the Taubman Approach*. Germany: Scholar's Press.
Moñino, M. R. C., Rosset-Llobet, J., Juan, L. C., Manzanares, M. D. G., & Ramos-Pichardo, J. D. (2017). Musculoskeletal problems in pianists and their influence on professional activity. *Medical Problems of Performing Artists, 32*(2), 118.
Murfin, S., & Haberman, M. (2007). Building the ship of death: Part I. *Explore-the Journal of Science and Healing, 3*(6), 619-622. doi: 10.1016/j.explore.2007.09.006
Myers, D. E. (1992). Teaching Learners of All Ages. *Music Educators Journal, 79*(4), 23-26.
Norris, R. N. (1993). *The musician's survival manual: a guide to preventing and treating injuries in instrumentalists*: Mmb Music.
Ohrenstein, D. (2003). Insights Into Training Aural and Kinesthetic Awareness. *Journal of Singing, 60*(1), 29-35.
Orlofsky, D., & Smith, R. (1997). Strategies for adult keyboard learners. *Music Educators Journal, 83*(No.4), 22-26.
Parker, P. (2007). *The Human Body Book*. UK: Dorling Kindersley Ltd.
Pascual-Leone, A. (2001). The brain that plays music and is changed by it. *Annals of the New York Academy of Sciences, 930*(1), 315-329.

Patel, A. D. (2003). Language, music, syntax and the brain. *Nature Neuroscience, 6*, 674. doi: 10.1038/nn1082

https://www.nature.com/articles/nn1082#supplementary-information

Payne, G. P., J. (2004). Key Concepts in Social Research. Retrieved from http://methods.sagepub.com/book/key-concepts-in-social-research doi:10.4135/9781849209397

Perkins, R., Aufegger, L., & Williamon, A. (2015). Learning through teaching: Exploring what conservatoire students learn from teaching beginner older adults. *International Journal of Music Education, 33*(1), 80-90.

Perkins, R., & Williamon, A. (2014). Learning to make music in older adulthood: A mixed-methods exploration of impacts on wellbeing. *Psychology of Music, 42*(4), 550-567.

Pierce, D. L. (2012). Rising to a new paradigm: Infusing health and wellness into the music curriculum. *Philosophy of Music Education Review, 20*(2), 154-176.

Podolsky, E. (1934). MUSIC AND HEALTH. *Canadian Medical Association Journal, 30*(2), 195-200. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC403235/

Rensing, N., Schemmann, H., & Zalpour, C. (2018). Musculoskeletal demands in violin and viola playing. *Med Probl Perform Art*.

Roberts, H. (1967). Aspects of Australian Music Education (vi). *AJME*(1), 25-30.

Roberts, L. (2018, April 8). Humble Ukelele changing the lives of Darwin seniors, *The Sunday Territorian,* pp. 18-19.

Rohwer, D. (2005). Teaching the adult beginning instrumentalist: ideas from practitioners. *International Journal of Music Education, 23*(1), 37-47. doi: 10.1177/0255761405050929

Rosen, N. B. (2002). Overuse, Pain, Rest, and the Pianist. In K. Kropff (Ed.), *A Symposium for Pianist and Teachers: Strategies to Develop the MInd and Body for Optimal Performance*. USA: Heritage Music Press.

Rosenthal, E. (1987). The Alexander technique–what it is and how it works: work with three musicians. *Medical Problems of Performing Artists, 2*(2), 53-57.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54-67. doi: 10.1006/ceps.1999.1020

Särkämö, T., Tervaniemi, M., & Huotilainen, M. (2013). Music perception and cognition: development, neural basis, and rehabilitative use of music. *Wiley Interdisciplinary Reviews: Cognitive Science, 4*(4), 441-451. doi: 10.1002/wcs.1237

Schmidt, R. A., & Lee, D. L. (2011). *Motor Control and Learning: A Behavioral Emphasis* (5th ed.). USA: Human Kinetics.

Schneider, S., Schonle, P. W., Altenmuller, E., & Munte, T. F. (2007). Using musical instruments to improve motor skill recovery following a stroke. *Journal of Neurology, 254*(10), 1339-1346. doi: 10.1007/s00415-006-0523-2

Schulkin, J., & Raglan, G. B. (2014). The evolution of music and human social capability. *Frontiers in Neuroscience, 8*, 292. doi: 10.3389/fnins.2014.00292

Seinfeld, S., Figueroa, H., Ortiz-Gil, J., & Sanchez-Vives, M. V. (2013). Effects of music learning and piano practice on cognitive function, mood and quality of life in older adults. *Frontiers in Psychology, 4*. doi: 10.3389/fpsyg.2013.00810
Shan, G., & Visentin, P. (2010). *Arts Biomechanics-an Infant Science: Its Challenges and Future*
Sherman, C. (2017) Successful Aging & Your Brain. USA: The Dana Foundation.
Silva, A. G., Lã, F., & Afreixo, V. (2015). Pain prevalence in instrumental musicians: a systematic review. *Med Probl Perform Art, 30*(1), 8-19.
Taylor, A. (2011). Older amateur keyboard players learning for self-fulfilment. *Psychology of Music, 39*(3), 345-363. doi: 10.1177/0305735610376262
Thaut, M. H. (2005). The future of music in therapy and medicine. In G. Avanzini, S. Koelsch, L. Lopez & M. Majno (Eds.), *Neurosciences and Music Ii: From Perception to Performance* (Vol. 1060, pp. 303-308).
Thomas, G. (2009). *How to do your Research Project*. UK: Sage Publications.
Thompson, M. R., & Luck, G. (2012). Exploring relationships between pianists' body movements, their expressive intentions and structural elements of the music. *Musicae Scientiae, 16*(1), 19-40. doi: 10.1177/1029864911423457
Thompson, W. F. (2015). *Music, Thought and Feeling*. USA: Oxford University Press.
Van Zijl, A. G. L. G. (2012). Moved through music: The effect of experienced emotions on performers' movement characteristics. *Psychology of Music, 41*(2), 175-197.
Varvarigou, M., Hallam, S., Creech, A., & McQueen, H. (2013). Different ways of experiencing music-making in later life: Creative music sessions for older learners in East London. *Research Studies in Music Education, 35*(1), 103-118.
Verghis, S. (2012, November 30). Sore pointes to tenor's elbow, *The Australian*.
Walliman, N. (2006). Socail research Methods. London, UK: Sage Publications.
Weinberger, N. M. (1999). Music and the brain. *Guitar Review*, 31-33.
Wijsman, S., & Ackermann, B. J. (2018). Educating Australian musicians: are we playing it safe? doi: 10.1093/heapro/day030
Woodard, K. (2009). Recovering disembodied spirits: teaching movement to musicians. *British Journal of Music Education, 26*(2), 153-172.
Wristen, B. (2006). Demographics and motivation of adult group piano students. *Music Education Research, 8*(3), 387-406. doi: 10.1080/14613800600957503
Zatorre, R. J., Chen, J. L., & Penhune, V. B. (2007). When the brain plays music: auditory–motor interactions in music perception and production. *Nature reviews neuroscience, 8*(7), 547-558.

APPENDIX A : On-line Questionnaire

Adult music students: motivation for learning a musical instrument and the perceived benefits of engaging in this activity.

QUESTIONNAIRE

Please be assured that your responses are anonymous and you will not be identified in any way.

Thank you for your time.

Please select your age group.

30-39	
40-49	
50-59	
60-69	
70-79	
80 and above	

Which statement best describes you?

Beginner student (learning 0 to 3 years)	
Intermediate student (learning 4 to 6 years)	
Advanced student (7 years and above)	
Not taking lessons but playing or singing in a group	

Do you play in an orchestra or sing in a choir?

Yes	
No	

What is your current work situation?

Work full-time	
Work part-time	
Retired	
Semi-retired	

Please state your instrument.

……

Participation

Your participation in this project is entirely voluntary and you are free to decline to participate without penalty.

You can withdraw from the project at any stage whilst completing the survey, without penalty, by closing the browser window.

By submitting the completed questionnaire, it will be assumed that you are providing informed consent to participate in this project.

Please tick one box for each statement.

Thinking about your **motivation** to take up a musical instrument (includes voice),

please indicate the reasons that apply to you.

Motivation	**Strongly agree**	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**	**Not applicable**
Appreciation and enjoyment of music						
A desire to fulfil a life-long ambition						
A desire to learn new skills						
A desire to improve my skills						
A desire to maintain my skills						
A need to do something that is challenging						
A need to fill my time purposefully						
A need to keep my brain engaged						
A need to train my attention/concentration						
A desire to keep my body physically active						
A desire to maintain my sense of balance, movement and coordination						
A desire to learn how to use my body effectively in playing or singing						
A need for relaxation from stress in daily life						
A need for social interaction with others						
I want to do a music examination						
I want to perform in concerts						
I motivated to learn advanced repertoire						
Encouragement from family members						
Encouragement from tutor						
Encouragement from friends or fellow students						
Other: please specify						

Thinking about the **benefits** from learning and practising your instrument (includes voice), please indicate if these statements apply to you.

Benefits	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**Not applicable**
Improves my self-esteem and confidence						
Enhanced my appreciation of music						
Improves my concentration						
I enjoy the opportunities for socialising						
Provides an outlet for personal expression and creativity						
Provides a spiritual and uplifting experience for me						
Enhances my emotional well-being						
Improved sense of movement						
I am conscious of the parts of my body that I use when I play my instrument/sing.						
My movements are well-coordinated and effortless						
I do not accumulate tension in my playing/singing						
Improved self-awareness and control of the muscles that are involved in the activity						
I am aware that playing a musical instrument or singing requires control of specific muscles in the body.						
I think about how I use my muscles to perform the task.						
I am in control of these muscles when I am playing/singing.						
I know how to release unnecessary tension in my muscles						

Improved sense of balance						
I am aware of my posture when I am playing/singing.						
My overall sense of balance has improved						
Improved joint mobility						
My joints are free and released so I can move efficiently						
Playing a musical instrument has enhanced my flexibility						
Improved physical well-being						
I use my body in the most efficient manner in playing my instrument/singing						
My overall physical well-being has improved						
Enhanced kinaesthetic perception						
My sense of overall body awareness has improved						

THANK YOU FOR PARTICIPATING IN THIS SURVEY!

APPENDIX B: Interview Schedule

Project Title: **Adult music students: their motivation for learning a musical instrument and the perceived benefits of engaging in this activity**

Name of researcher: Kathryn Hui TAN

INTERVIEW SCHEDULE

- Thank participant for their time
- Explain the purpose of the interview
- Address terms of confidentiality
- Give participant Informed Consent Form to read
- Explain format of the interview
- Indicate possible duration of the process
- Give contact details if they need to get in touch with me later
- Ask if they have questions before starting the interview
- At the end of the interview, ask participant if there is anything we discussed that they do not wish to be recorded as data

Question 1:

Please indicate your age group:

30-39; 40-49;50-59;60-69;70-79;80 and above

Question 2:

In what capacity are you involved in music making?

For example: student and level; community musician, student at CYCM or CDU

Question 3:

What is your current work situation?

Question 4:

What instrument do you play?

Question 5:

Can you please tell me what motivated you to take up music?

b) What factors motivated you to keep up with your practice?

Question 6:

In the time that you have been learning, practising and playing, have you experienced any significant benefits in your lifestyle?

Question 7:

The following questions relate to the kinaesthetic experience in playing and singing.

Explain what kinaesthetic sense if participant is unsure.

* Sense of movement – are you always conscious of the body parts that you use in the activity?

*How well do you move? Are your movements well-coordinated and effortless?

*Awareness and control of muscles that are involved in the activity – can you describe your experience with regard to this aspect?

*Please tell me about your sense of balance or posture – what changes, if any, have you noticed since taking up this musical activity?

*On a scale of 1 to 10, (10 being strongest) how would you rate your kinaesthetic sense?

In other words, how is your sense of body awareness?

Is there any information that you do not wish to be included in the transcript?

Thank you for taking the time to do this interview.

APPENDIX C: Demographic Information

Table 1 Age

Age group	n	%
30-39	10	17.5
40-49	4	7
50-59	10	17.5
60-69	23	40.3
70-79	7	12.7
80 and above	3	5

Note: Gender was not asked in the questionnaire.

Table 2 Work status

Status	n	%
Work full-time	16	28
Work part-time	16	28
Unemployed	3	5.3
Retired	22	38.6

Table 3 Level of playing

Level	n	%
Beginner (learning 0 to 3 years)	4	7
Intermediate (learning 4 to 6 years)	7	12.3
Advanced (learning 7 years and above)	15	26.3
Not taking lessons but playing or singing in a group*	31	54.4

Note: * This cohort included adult community musicians reporting on their previous experience with learning and who are currently practising and learning in their playing environment.

Table 4 Involvement in orchestra or choir

	n	%
Yes	47	82.5
No	10	17.5

Table 5 Instruments

Instrument played	n	%
Bassoon	1	1.7
Clarinet	5	8.8
Cello	2	3.5
Cornet	1	1.7
Flute	1	1.7
Guitar	6	10.5
Harp	1	1.7
Horn	4	7
Oboe	1	1.7
Percussion	1	1.7
Piano/keyboard	17	30
Trumpet	2	3.5
Ukelele	4	7
Viola	3	5.2
Violin	6	10.5
Voice	30	52
Xylophone	1	1.7

Note: Total number exceeds number of participants due to students reporting more than one instrument.

16 participants play 2 instruments

3 participants play 3 instruments

5 participants play 4 or more instruments