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**PRACTISING JAZZ PERFORMANCE: AN INVESTIGATION INTO  
THE PROCESS THAT UNDERPINS OPTIMAL INSTRUMENTAL  
PRACTICE IN THE JAZZ IDIOM.**

---

Christopher John Tarr

Submitted for the award of Master of Arts

On August 1st, 2016

Western Australian Academy of Performing Arts  
Edith Cowan University

## USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

## **PREFACE**

As a drum set player, I have been an improviser since I first began playing. This element is one of the more interesting and joyful elements of playing the instrument. Despite society's view of drumming being some kind of 'workout' or Neanderthal chest beating exercise, much of the art in playing the instrument is in the mind's ability to control the body amidst the incredible number of possible co-ordination scenarios that present themselves from moment to moment. Much like martial arts, the use of the mind becomes an important consideration.

As a teacher in the tertiary environment, the psychology of instrumental practice and performance is I feel, an under represented subject. Evidence presented in this study suggests that the mental processes of elite improvisers during both practice and performance is an important consideration and yet remains the 'elephant in the room' during most of the day-day teaching at a tertiary institution. Recent personal discoveries in my own performance outcomes and in the power of the mind in helping students to progress and perform at an optimal level has led me to undertake this study.

It is hoped this study will re-evaluate not only how learning jazz can be more creative and personal, but also how students can learn to practise and perform from 'the source' so they can themselves become elite improvisers.

**CHRIS TARR**

## **ABSTRACT**

Little formal research has been undertaken into the processes associated with jazz improvisation, particularly those associated with practising to become an elite jazz improviser. This study seeks to understand the role of instrumental practice, particularly physical practice strategies and the associated mental states, in the development of jazz improvisers. Interviews were conducted with six improvisers of various ages, instruments and backgrounds. The study identified a number of strategies specific to jazz practice that differed from traditional practice strategies described in Western art literature, particularly in relation to the importance of the ear-to-instrument connection. Accordingly, the study sets out a series of recommendations relating to practice for those aspiring to become master jazz performers.

## DECLARATION

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Thank you to my initial supervisors Graham Wood and Maggi Phillips for their direction and encouragement. Maggi's dedication to research in the arts at WAAPA is sorely missed. Thanks also to my colleagues for their wisdom and inspiration, WAAPA is a dynamic and rewarding place to teach and I'm proud to be part of it.

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## **Chapter One - Introduction**

### **1.0 Introduction**

This study aims to investigate the key methods, strategies and processes that are present in the practice habits of the professional jazz musician. Practice forms the main developmental characteristic of the elite jazz improviser and much of what is practised relates to improvisation. Improvisation differs from other musical skills in that it is not pre-conceived or written down. The improviser is playing different notes in a different order to that which they have been played before. This is a difficult skill to practise because instead of practising specific musical passages, jazz musicians practise language and manipulation of that language (Kratus, 1996). Sloboda, Davidson, Howe and Moore (1996) suggest non-improvising musicians generally practise two aspects of music; technical exercises such as scales and arpeggios and set pieces or repertoire that involve defined outcomes. However, the improviser is practising for an undefined outcome. Ear to instrument connection becomes paramount as opposed to an eye to instrument process, as is the case when reading preconceived musical passages (Watson, 2010). Another element that may influence improvisational ability is mental process. The elite improviser at their best is not thinking consciously about their playing but rather allowing their ear to lead the instrument (Berkowitz, 2010). This mental state is described by Werner (1996) as 'the space' and at length by Csikszentmihalyi (1990) as 'flow'. This project therefore also seeks to investigate practice habits relating to the development of the ear to instrument connection, and mental states relating to 'the space' or 'flow'.

### **1.1 Problem statement**

Little is known about the practice habits and mental routines that are needed to effectively develop high level improvisation skills. Research into traditional instrumental practice strategies deals largely with the non-improvised elements of music performance. However, improvisation requires practice strategies and mental processes that may differ from more traditional music practices that have developed over many years, largely in the Western art

genre, and thus little formal study has been undertaken in this area.

Understanding the process involved in practising improvisation would benefit both the students and the teachers of future generations of jazz. With regard to these statements, the following research questions are proposed.

## **1.2 Research questions**

1. What practice methods and strategies are utilized by elite jazz musicians as they develop skills in the art of improvisation, and how do these methods and strategies differ from those associated with non-improvised or pre-determined musical pieces?
2. What mental processes do elite jazz musicians use in order to reach their full potential as improvisers?

## **1.3 Significance of the study**

This study is significant because it aims to explore the key physical and mental elements in the instrumental practice approach of leading improvisers and see how these may diverge from more standard practice approaches. Improvisation is under-represented in research pertaining to instrumental practice, and this study aims to shed new light on how effective practice techniques and mental processes enhance performance outcomes. The study will also investigate the mental states experienced by improvisers when practising, and this has the potential to impact jazz improvisation practice pedagogy. It is also anticipated that through research of successful musicians in the jazz idiom, a more thorough understanding of the role of practice, and how it is undertaken, can enhance the musician in performance. The research will provide a framework for an approach to practising that could vastly improve the success of jazz students in their formative years and so influence their entire career. This is the first study of its type to investigate the practice approaches used by master improvisers by interviewing the improvisers themselves.

## **1.4 Background**

The journey to instrumental mastery is one of dedication and persistence requiring many hours of daily practice over a period of years. This, for most

musicians, and masters of any skill for that matter, probably consumes the biggest part of their lives in relation to their career and undoubtedly becomes their most influential and defining commitment. Research into 'practice' as a topic has been conducted for many years (Hughes, 1915; Nielsen, 1999; Barry, 1992; Auer, 1921; McPherson & Renwick, 2001; Gellrich & Sundin, 1993). Much of the research has been directed into the area of sport and other skill based tasks. Music has also attracted its fair share of attention as a skill-based task that requires practice to improve (Sloboda et.al.1996; Deckart, 1984; Duke, Simmons & Cash, 2009; Hallam, 2001; McPherson & McCormick; Jorgensen, 1995). A major study into practice by Ericsson, Krampe and Teschmer (1993) investigated the area of practice across a number of different skill sets including chess, running, typing and instrumental music, and concluded that 10,000 hours was the time commitment required to achieve mastery. Ericsson's study took groups of violinists and pianists at different stages of their respective careers and surveyed their practice times. Participants were asked to diarize their practice times during a standard week, and estimate how many hours they practised in their formative years. Although Ericsson found a bias towards exaggerating the number of practice hours that were actually completed, he rounded this down in all cases to arrive at his research conclusion. Importantly, McPherson and McCormick (1999) studied the practice habits of younger musicians and found practice strategies to be a more accurate predictor of success than mere practice time alone.

Researchers including Sloboda et. al. (1996) and Duke et. al. (2009) have studied strategies used by musicians to make their practice more efficient and effective, and conclude that in order for it to be effective, it must be focused and deliberate. This may also be described as the student being aware of their errors and having an intention to improve. Klickstein (2009) describes practice as:

“...the deliberate, creative process of improving ability and of mastering music for performance.” (p. 7)

The ability to practise deliberately or in a deep way is essential for any musician who is aiming for the highest level of achievement in their discipline

(Coyle, 2010). Given its importance, it would be reasonable to expect to see a myriad of texts, videos, papers and material on the process of practising, and while a number exist in the context of the classical genre, the majority cover these five areas:

1. How to memorize music for performance (Chaffin, 1997).
2. How to control performance anxiety (Kenny & Osborne, 2006).
3. How to avoid injury (Ackermann, Driscoll & Kenny, 2012).
4. How to learn music passages accurately and in the shortest space of time (McPherson & McCormick, 1999).
5. The cognitive processes that operate when learning/playing music (Duke et. al., 2009; Robert, 2011).

While the Western art genre can be personal and expressive, it mainly draws on predetermined skills such as reading, technique, interpretation and memorization. Jazz improvisation requires the ability to express oneself spontaneously through manipulation of a musical language (Priest, 1989; Dyson, 2008). These varied performance skills require different practice strategies, and for the jazz improviser the process is complicated by the amount of information and variety of methods that may be pursued. Numerous texts relating to jazz improvisation are available, however very few deal with its grammatical use in musical production. Jazz improvisation requires the skill to compose a musical idea in real time while also communicating with others in a group. Research into the area of practising for jazz improvisation is under represented and, due to its spontaneous nature, it is more difficult to measure practice strategies or techniques, especially over shorter time frames, as criteria cannot be tested against a written component. The following statement by master jazz pianist Herbie Hancock explains the complex relationship between practice and performance that exists in the realm of improvised music:

“Sometimes you can practice something but what you wind up playing when you’re out doing a gig is not what you practiced. What you learn is not necessarily what you practice. (Hancock, 2015)

This research project aims to investigate the processes at work in developing a highly expressive and communicative musician in the jazz idiom, in a more



descriptive way than just a measure of time such as the 10,000 hours rule (Ericsson et.al. 1993). Is the method of practice the largest contributor to success, or can mastery be achieved in less time with more effective and efficient practice as described in the Western art music context by Sloboda et. al. (1996), McPherson (1999) and Duke et. al. (2009)? Some musicians, students and professionals who have spent many hours practising are still not able to express themselves fully when performing; that is to say that they cannot transfer their practice into successful performance, in a sense they are practice professionals who are only comfortable and at ease when practising on their own.

Master musicians often speak about a higher level of thinking or a zone that is attained during peak performance or practice. This shift in consciousness ability needs to be examined as a possible attribute of performance that requires development strategies:

“I play music from this space. The longer I play, the deeper into the ‘space’ I go and the quieter my mind becomes. Other issues seem less important. I focus deeper and deeper in the moment. Inspiration and ideas start to flow through me. The execution of the music becomes automatic.” (Werner, 1996, p. 84)

This state is recognised by many elite musicians and sportspeople and may be likened to meditation. This subject is now beginning to have an impact in the area of arts education. “The Inner Game” (Green, 1986), “Effortless Mastery” (Werner, 1996), “The Talent Code” (Coyle, 2010), “The Art of Practicing ” (Bruser, 1997) and “The Practicing Mind” (Sterner, 2005) all deal with the psychology of music and the inner self, and the impact of the ego in blocking creative expression. Ericsson’s (2007) work has also highlighted key psychological factors at play in producing a master musician, artist or sportsperson, including awareness when practising, motivation to practise and the amount of deliberate practice undertaken as opposed to non-deliberate practice.

Tennis players, golfers and athletes from many and varied sports have made great strides in understanding how practice affects performance and how to

maximize the benefits of practising. Playing a sport is not dissimilar to playing a musical instrument in an improvised situation; they both involve muscle control, many hours of practice and unspecified spontaneous outcomes; i.e. the ability to improvise. However, there are no studies that currently contrast literature on the subject of jazz improvisation as it is observed with actual accounts and insights from improvisers themselves. Researching the cognitive aspects of improvisation is impossible by simply observing others improvise; further investigation into thought processes is required. Some studies have used MRI scans to assess brain activity and found greater activity on the right or creative side of the brain (Limb & Braun, 2008), but the method of exploring cognition in relation to jazz performance via MRI scans is currently still in its infancy. Therefore, there is a lack of research into the process of how musicians practice in order to improve as improvisers, i.e. which techniques are superior to others. There is also minimal research relating to the psychology of practising and performing improvisation at the elite level. Kratus (1996) Elliott (1995) and Borgo (2007) have all investigated the development of the improviser but none have asked the improvisers themselves what processes occur during practice prior to improvisation. This would seem a logical way to gain insights into mental processes, as even direct visual observation is limited.

## **1.5 Methodology**

In seeking to investigate the practice methods, strategies and mental states employed by elite improvisers, a qualitative methodology was primarily employed given its suitability in investigating the characteristics of human behaviour. The research followed two main paths of enquiry:

1. A literature review aimed at fully exploring established musicians' experiences and reflections on practice and improvisation. Biographies, interviews and other sources were accessed to build a profile of the successful jazz musician. The literature review also aimed to identify key studies in the area of instrumental practice, improvisation and the mental processes that occur during improvisation performance.
2. Focus interviews with select improvisers across a range of instruments. Interviews with six improvisers were conducted to gain greater insight into

their instrumental practice methods and strategies in relation to improvisation.

Participants varied in ages and played different instruments, these represented the main instrumental groups common to jazz: drum set, bass, guitar, piano, saxophone and trombone (brass). Importantly, the participants emanated from various educational backgrounds. Some were primarily self-taught, while others studied music at school and at the tertiary level. The interviews were undertaken in order to explore these elite musicians' personal relationships between practice and improvised performance.

The literature review discovered key research themes pertaining to instrumental practice, and the mental processes experienced by performing improvisers. These topics formed the basis for designing a series of interview questions. In addition, information from the participants themselves also guided the additional questions in a semi-structured interview process. The interview data was coded in relation to the topics uncovered in the literature review, and additional topics of discussion generated by the interviews were also considered.

The thesis is set out in table 1.1 as follows:

<b>Chapter</b>	<b>Topic</b>
<b>Chapter 1 Introduction</b>	The introduction presents the topic and research questions and how these were answered.
<b>Chapter 2 Literature review</b>	The literature review investigated research already undertaken in the area of instrumental practice and also highlighted gaps in the areas of mental process in terms of improvisation performance.
<b>Chapter 3 Methodology</b>	Chapter three established the rationale for using the research methods chosen and the reasons for this.
<b>Chapter 4 Interview data</b>	Chapter four contains the interview data in coded form in line with the literature review topics.
<b>Chapter 5 Discussion</b>	The discussion chapter contrasts the topics in the literature review with the interview data, answers the research questions and suggests recommendations for future research and teaching.
<b>Chapter 6 Conclusion</b>	The conclusion summarizes the research, identifies the limitations of the study and makes recommendations for future research.

Table 1.1. - Organisation of the Thesis

## **1.6 Conclusion**

As a musician and teacher, the activity of practice is a large part of what drives my professional and academic career, and is the main focus for my students. Through this research I hope to gain greater understanding into what methods, strategies and especially what mental processes might be utilized to nurture successful improvising for jazz musicians. The research will also investigate the role of the mind in being able to attain a state that is best geared towards creative expression. The role of psychology in jazz improvisation is dealt with in some detail in Bailey (1980) and Berliner (1992) however a greater understanding of how psychology may benefit the teachers and students of improvisation would be valuable.

## **Chapter Two - Literature Review**

### **2.0 Introduction**

Practice forms the largest and most integral part of a professional musician's life. Research into the practice phenomenon and how it relates to successful performance is extensive, however, much of this research deals with specific practice conditions and predominantly pre-written musical passages. Little exists in the area of practice specific to jazz improvisation. Jazz improvisation calls upon the performer to spontaneously create a musical line within a defined harmonic structure in real time, while interacting with other musicians. As in conversation, there is dialogue and a developing narrative. This complex task requires specific and targeted strategies that differ from practice methods that only focus on the performance of written music.

This chapter explores the literature on practice, in an attempt to locate the methods employed by master jazz improvisers during practice and see how this may inform pedagogical approaches. In response to the research questions, the chapter is organised into two parts. The first part focuses on literature relating to practice techniques and research into effective practice methods in general, and the second part focuses on the cognitive aspects of improvisation practice and performance.

### **Part One**

#### **2.1 Early musical experiences**

A music student at the beginning of their journey may approach an instrument in different ways. They may borrow one or be given one by a family member who has lost interest in playing. For many younger students in formal education in Western Australia, a music aptitude test may be the path to learning to play an instrument. This generally leads to choosing an instrument and then formal tuition where reading the written note is frequently the primary and often only method of conveying musical information. Dipnall (2013) states:

“A situation has arisen through instrumental teaching practices that over-emphasise the successful and accurate reading of other people’s music” (p. 74).

In some cases, however, students may start informally on an instrument, beginning by working out tunes for themselves by trial and error. Jazz musicians Albert Nichols and Bud Scott describe their early experiences:

“Sid Betchet and I didn’t have any musical education at the time. We’d just sit on the curbs and experiment with different melodies.”  
(Hentoff & Shapiro, 1955, p. 39)

Similarly Bud Scott states:

“I was first taken to guitar at four years of age. I had a cousin who had a guitar, who roomed at our house. When he was through with it at night, he put it under his bed. My mother went to the store one day and I was left alone in the house. I had the idea to go under the bed and get that guitar. I picked it up, fooled with it a little bit, and started with home sweet home, a melody in three chords.” (p. 42)

These two accounts by early jazz musicians underline a fundamental difference in the way learning an instrument can first be experienced, one formally or by reading the written note and the other informally, or predominantly by ear. Learning by reading notes is the most common way that students in the Western art musical tradition learn, and this has far reaching implications for their practice habits and performance outcomes. It is reasonable to suggest that overemphasis in reading and visual cues is less likely to encourage the inclination to improvise or play by ear (Woody, 2012). Musicians who begin by trying to play familiar melodies are more likely to develop a stronger ear to instrument connection, as their initial contact and subsequent development is based on hearing pitch and then learning where it is located on the instrument (Priest, 1989). Many hours of experimentation and practice are required to strengthen and hone this skill. The aurally focused musician may be a poor reader if sight reading skills are not practiced, but research by Azzara (1993) suggests that learning by ear does not necessarily equate to being a poor reader and can actually improve sight reading ability. Priest (1989) states that playing by ear is undervalued in music education, and for the student musician who is interested in learning to improvise in the jazz genre, this is an area that must be examined.

### **2.1.2 Formation of practice habits**

Students form habits early in their development and unless an insightful teacher is able to discern that the student practises in an inconsistent or inappropriate manner, they may think their student lacks ability or does not practise enough between lessons. The method of practice used by the student may not be discussed, and they may continue to practise inefficiently until it becomes apparent that the practice methods being used are ineffective. Deckart (1984) states that visual-based learning focuses primarily on accuracy in reproduction. Factors such as expression, tuning, sound, precise rhythmic accuracy and nuance can become secondary in the endeavour to reproduce the written passage. If a piece of music is practised inaccurately or incorrectly it may be re-enforced through repetition and then reproduced in a performance situation.

McPherson's (1999) study into young music students' practice methods indicates that the most successful music students listen to themselves, correct mistakes, and are goal oriented in their practice approach. Less successful students tend not to correct mistakes and also play through larger amounts of material at one time. It is assumed by many teachers that students use effective strategies when they practise, but many do not. Johnson (2004) lists common practice errors such as:

1. Always starting from the top of the piece.
2. Practising too fast to accurately analyse sound, technique or the correct notes.
3. Learning material incorrectly in the first instance.
4. Not playing with rhythmic accuracy (not with a metronome).
5. Practising what is familiar and avoiding unfamiliar material.
6. Not practising in context.
7. Not listening when practising.
8. Not correcting errors.
9. Unfocused practice.

Habits of inefficient practice or practice that is not goal oriented may begin early and embed themselves in the muscle memory and mental processes of

the student. However, it is possible that changes in the practice process can break these habits and encourage the student to practice in a more efficient and ultimately, rewarding way.

### **2.1.3 Amount of time versus method in learning music**

Studies into student practice methods by Gary McPherson (2002) and Duke et. al. (2009) suggest that substantive improvement can be made if the correct strategies are utilized. Both opine that effective strategies are better predictors of achievement than dedicated practice time alone. Instrumental music practice, unlike many school subjects, is often measured in terms of time spent on task as the measure of commitment, as opposed to goals achieved. This may be due to the difficulty of measuring improvement in music, unlike other subjects where improvement or evidence of knowledge is more easily quantified (Duke, et al. 2009). The amount of time spent practising as a measure of commitment is often carried into the professional musician's professional life and the practice method itself is marginalized.

Both Ericsson's (1993) and Coyle's (2010) notation-based studies investigated the topic of expertise in terms of practice hours. Both found that an enormous amount of time must be invested to reach the elite level in any field that requires a skill and knowledge base. A question that arises is whether this can be done in less time if optimal strategies are employed. Is it possible that elite performers use highly efficient strategies to reach a high level of performance and that underperforming musicians may practice for a similar amount of time but not become elite performers?

Duke et. al. (2009) revealed that in short term practice tests of pianists at a tertiary institution, the practice time or total number of performance trials were unrelated to retention test performances. This would seem to indicate that practice strategies, rather than simple repetition, are the main contributing factor in a successful performance. They found that:

“...the strategies employed during practice were more determinative of their retention test performances than was how much or how long they practiced.” (p. 318)

These studies reveal that the quality of a musician's practice and the use of



specific strategies play a bigger role in success than a simple measure of accumulated practice time. However, the limitation of many of the studies into practice, as Ericsson et al. (1993) state, is that musicians tend to overestimate practice time when diarizing it. The Madsen (2004) study that followed students from the tertiary level into later life ascertained that the musicians were unable to accurately remember how much deliberate practice they undertook earlier in their careers. McPherson's study only covers three years in the practice life of young musicians, so it would seem difficult to reliably ascertain time frames for past deliberate practice. In terms of improvisation, informal practice such as group rehearsal, listening to music, playing for enjoyment and performing might also not be included in the practice hours, yet these form a crucial part of the professional jazz improvisers' development (Virkkula, 2015).

#### **2.1.4 The characteristics of deliberate practice**

The act of practising a musical instrument for most students can be arduous. Many music students find practising frustrating, extremely hard work and something to be avoided, however, practice can also be enjoyable and rewarding, as the following quote from prominent violinist Yehudi Menuhin suggests:

“Practicing is not forced labour, it is a refined art that partakes of intuition, of inspiration, patience, elegance, clarity, balance and above all, the search for ever greater joy in movement and expression.”  
(Bruser, 1997, p. xiii)

Menuhin suggests that practice itself is an art that takes time to develop into an effective, efficient and enjoyable activity. It would seem that those with the ability to practise for many hours, and the motivation to do it daily, have either discovered how to enjoy the process, or are fully cognizant of the rewards that practising can bring. Ericsson et. al. (1993) describe activities in relation to music as being work, play or deliberate practice; and define them as follows (p. 368):

- Work - performing for some kind of external reward, financial or an assessment of some kind.
- Play - playing through various pieces of music mainly for enjoyment.

- Deliberate practice –a highly structured activity designed to improve performance.

All of the definitions associated with deliberate practice describe an activity that is intended to produce positive results. Work and play activities are not necessarily intended to generate improvement. The key word is deliberate. The activity is *designed* to improve performance. This includes being able to reflect on what needs to be improved and then being able to create an exercise or drill that hones in on that particular problem with a view to solving it (Klickstein, 2009). Often these drills or exercises are the building blocks of the music being played and are designed to improve technique. This also requires constant listening in order to set up a positive feedback loop of trial and correction.

### **2.1.5 Practicing technique**

A significant proportion of practice for both beginner and professional musicians is based on technical exercises, scales and arpeggios. Books such as the 'Complete Conservatory Method for Trumpet' by Jean Baptist Arban and 'The Virtuoso Pianist' by Charles Hannon are considered essential for musicians serious about pursuing an instrument to the elite level. The purpose of practising technique is to master all of the physical demands of playing an instrument as alluded to by Sloboda, Davidson, Howe and Moore (1996):

“Usually these exercises have no musical interest or merit in themselves, but expose the performer to a full range of problems that are likely to occur in pieces of music within a genre. They are usually short and highly repetitive, exposing the performer to the maximum number of instances of the particular problem in the minimum time.” (p. 290)

Just as a martial artist will have a set of exercises that he or she will have as a way to stay fit and constantly enforce the foundational movements of the art form, so does a musician as well. Scales and arpeggios form the basis of much of the harmonic language used by all musicians whatever genre of music they may play. Drummers and percussionists have rudimental sticking patterns that form an integral part of their practice routines and are the basis for much of the rhythmic language of the contemporary drummer. Portions of

these technical exercises may occur in a performance situation but it is unlikely that a whole exercise would ever be played. So why practise these exercises? Most high level musicians are aware that daily contact establishes familiarity and connection with the instrument, and covers all of the technical challenges and most difficult musical elements of playing their specific instrument. Klickstein (2009) states:

“When you develop robust technical skills, you can close the gap between what you feel and what you’re able to express through your instrument or voice.” (p. 94)

Klickstein (2009) suggests that technical practice allows freedom and expression on an instrument. When the musician has covered the technical ground, these foundational elements become automatic and the musician is free to concentrate on the music itself. Many experienced musicians agree that this is an integral part of being a musician and is part of a daily regime that will also include repertoire, sight reading new material and contextual or performance practice. However, the importance of refined technique may be misunderstood by younger musicians, who may be opposed to allocating inordinate amounts of time to exercises that they will probably never actually perform for anybody except a teacher or examiner. It may be difficult for a student to see any long-term reward connected with practising technique. Sloboda et.al. (1996) state that:

“Most musicians conceive of their formal practice as composed of two separate task categories...technical exercises which have a generic function in assisting the musician to improve systematically mechanical aspects of performance...The second category comprises work on actual pieces...All musicians recognize that technical exercises are inherently unenjoyable.” (p. 290)

This statement assumes that *all* musicians find practising technique un-enjoyable. Some musicians may actually find all aspects of practising enjoyable and rewarding, including technical exercises, especially if the musician understands the relationship between technical exercises and performance outcomes.

### **2.1.6 Technique in jazz improvisation**

Although integral to elite musicianship, the weight of traditional technical

material can be over emphasised in the development of the tertiary jazz musician whose goal is to be able to improvise. Kratus (1996) states that:

“...by extolling technique above all else in music-making, teachers can inadvertently encourage a different ‘bad habit’ in their students, that of being uncreative, inexpressive performers who can only imitate what others play to them or mechanically realise music notation.” (p. 34)

Although technical exercises re-enforce the structural elements of music, they may not target the development of improvisation skills, especially within the jazz language. Kratus (1996) states that:

“Activities for improving technique should be done in the genuine context of music making, whenever possible, rather than as drill exercises. Drills do little to promote the musicianship necessary for connecting performance proficiency and improvisational ability”(p. 34)

Having highly developed technique does not necessarily equate to being a proficient improviser who is able to transfer internal hearing to the instrument, as stated by Antonio Sanchez (2013) in a recent interview:

“I feel like when you practice too much, you regurgitate licks and patterns more than being in the moment. I think when you are a creative jazz musician you can actually practice too much. I felt like I had too much technique and hand reflex that would sometimes override the creative side of my playing. I feel like I have less chops than before but I’m way more musical and creative and mature and “in the moment”. (Sanchez, 2013, para. 1)

Some authors have attempted to cross the divide between technical exercises and fluid improvisation by introducing exercises or patterns more aligned with jazz language instead of the traditional classically based texts. One example is “Jazz Hannon” (Alfassy,1980). This text contains the type of technical demands that are likely to be encountered by a professional jazz pianist. While this book does present technical exercises useful to the jazz musician, it is still a written text and does not involve actual improvisation or creative composition in real time.

The documentation of these numerous technical studies encourages a learning process based on note reading, so it is not surprising that many data-based studies have been conducted by testing against a written score (Sloboda, Davidson, Howe & Moore, 1996; Miklaszewsk, 1989; Hallam, 2001;

McPherson, Renwick, 2010; Pitts, Davidson, 2000; Nielsen, 1999). While practising to build technique forms an important part of the process of becoming a professional musician, it does not specifically target the skill of improvisation. When the goal is to become an improviser then it would seem appropriate to actually practise improvisation and not merely read technical exercises or patterns, even if these are representative of traditional jazz language.

### **2.1.7 The role of aural, visual and mechanical memory**

There has been much research into the process of practising music to build retention and performance accuracy (Kostka, 2002; McPherson 2005; Chaffin, Imreh & Crawford 2002; Ericsson, 1993). However, the music used in these studies is notated and drawn from the Western art music tradition, as such it might not adequately capture jazz practice, as it does not focus on the creative process of composing in real time. One of the primary concerns for a musician learning a significant amount of music for a performance is the ability to recall the piece and play it from memory without a score (Chaffin & Imreh, 1997). For the Western art music soloist, memorizing the score for performance is almost universally accepted as standard procedure. The experienced musician understands why this is important. Firstly, memorization of a piece of music builds familiarity. Secondly, it allows the musician the freedom to focus on other elements of making music: expression, rhythm, dynamics and sound. Memorization of musical score is an important strategy for the performing musician and research suggests it can be a key factor in the career advancement of the classical musician (Chaffin, 1997). However, the music must be learnt correctly and accurately. Accurate representation of written music requires specific practice techniques that will ensure an accurate performance. If the piece has been memorized by way of a mechanical or analytical process, it has the potential to be performed in an inexpressive or unemotional way. Elements in the music such as dynamics, rhythmic spacing, texture, tone and contrast may be given less importance in the effort to read and memorize a large amount of music. In describing the process, Bruser (1997) states that:

“None of this great effort to memorize music means anything if you can’t hear it in your mind’s ear while you mentally go through the motions. A strong auditory memory not only helps you remember where to place your fingers but also creates a more musical performance.” (p. 219)

Musicians may become reliant on mechanical memory, especially in their early development. This may be due to the use of repetition as a pervasive practice strategy and also to a weaker aural ability. Less detailed knowledge of the music may also play a part in a mechanical approach (Chaffin & Imreh, 1994). As the musician develops, additional strategies are implemented that allow for the memorization of larger amounts of material (Chaffin & Imreh, 1994).

According to Hughes (1915), aural memory is generally the best and most enduring memory type when dealing with music or sound. Music learnt early in life by ear, such as songs or poems, can remain for a lifetime, enduring in aural memory often based upon repetition of patterns of sound and not because of a mechanical or visual stimulus.

Musicians often develop muscle memory - patterns of movement which allow them to physically recall certain pieces or patterns. Mechanical or muscle memory, although an important part of the performing musician’s recall strategies, can also work against the musician in performance as it is not as accurate as aural memory. Bruser (1997) states that it can also be inconsistent, especially if errors are made in the initial learning of the material. The body is likely to recall these errors, instead of the correct written version, in performance situations.

“Relying solely on kinaesthetic memory is dangerous, because if the body slips up, you don’t know where you are in the score, and you have to do what that famous pianist did in San Francisco-start all over from the beginning.” (p. 218)

Mechanical memory can also have many negative implications for the improvising musician who needs to be able to constantly change and adapt melody, harmony and/or rhythm in performance in the unfolding communication or musical dialogue. If a common melody is played in a different key or time signature, then mechanical memory in most cases

becomes obsolete. It may also limit the improvising musician to patterns with which they are mechanically familiar.

For elite jazz performers there is a connection, however, between muscle memory and aural memory, which allows the body to play pre-heard patterns and also to experience a mechanical response. Elliott (1995) describes this phenomenon as “knowing in action” (p. 8). Schon (1987) describes ‘ear to instrument’ connection as the primary aim for the master improviser. This is also described by Kratus (1989) as “fluid improvisation”. The inexperienced or novice improviser may learn pre-determined patterns that can be inserted into the correct harmonic framework, as opposed to actually pre-hearing what they are playing and initiating the corresponding action. Master jazz improviser Chick Corea (1987) alludes to this in his advice to improvising musicians:

- Play only what you hear.
- If you don’t hear anything, don’t play anything.
- Don’t let your fingers and limbs just wander, place them intentionally (p. 61).

Visual memory, even for those gifted with a photographic memory, would appear to be the least practical for the improvising musician. Music is sound, and the ear, not the eye, deals with this in the first instance. The jazz style traditionally relies much more on learning and playing by ear than on reading the written note. Some high profile jazz musicians such as Erroll Garner and Chet Baker were both poor sight-readers, yet both of these artists made influential and enduring contributions to jazz, and it could be argued that their focus on learning by ear may have actually enhanced their ability to improvise. In his study on efficient memorizers, Ericsson (2003) found that world class memorizers were those that had the best retention strategies though not necessarily better cognitive capacity in relation to retention. He also found no difference detectable in memorizing information between advanced memorizers and the average person, if the information could not be contextualized or given meaning. His conclusion was that memory can be improved to a high degree if the appropriate strategies are learnt and implemented. Studies by Sloboda (1984), and Halpern and Bower (1982)

suggest that music theory knowledge is implicated in both reading and memorizing written passages and can affect the recall accuracy of both of these tasks. Their reasoning was that theory knowledge allowed the musician to have a greater understanding of how the notes related to each other and so aided memorization. Theory knowledge also aids sight-reading as the information can be grouped into phrases, allowing the reader to take in greater amounts of information at a time and read ahead. In relation to memorizing a musical score, Bruser (1997) undertook an exhaustive study into the harmonic structure of a piece of music to understand how it was constructed. Bruser concluded that this form of analysis enhanced the meaning of the material making it easier to recall. Using a similar process, jazz musicians memorize chord sequences by analysing the harmonic structure in terms of function, so that individual chords become part of a larger key area, or relate to each other in some way.

Although memorization maybe a concern for the jazz improviser when learning a melody or a written arrangement, it becomes less so in the act of improvisation. However, the Western art music tradition continues to have an enduring impact on practice techniques, and therefore it is important to consider its effectiveness and relevance for the practicing improviser, especially in terms of reading written music.

### **2.1.8 The limitations of practising from written music**

Once Guido of Arezzo popularized the musical staff, it became possible to document musical notation with increasing sophistication (Haines 2008). Since then, the goal of playing musical notation accurately has become a highly valued skill for professional musicians. Reproductive accuracy has become a prime concern for musicians in the Western classical music tradition, to the extent that they have increasingly focused on the goal of accuracy in reading and playing of notated material often at the expense of other aspects of in music making, especially improvisation (Chaffin 1997). Early European music involved a high degree of improvisation, and both Bach and Beethoven were masters of this skill. However, in Western classical music the written note has arguably become the focus of both performance



and research into performance. Timmers and Honing (2002) state:

“Measurement of musical performances is of interest to studies in musicology, music psychology and music performance practice, but in general it has not been considered the main issue: when analysing Western classical music, these disciplines usually focus on the score rather than the performance. This status seems to be at odds with the central position of music performance in musical behaviour.” (p. 2)

Accuracy in the performance of written music can be only be measured in terms of the limits of the written note, at best a guide, which deals largely with aspects such as pitch, rhythm, note length, dynamics and articulation (Windsor & Clarke, 1997; Timmers & Honing, 2002).

While it could be argued that all written music is fundamentally built on these five constructive aspects, this would discount other important elements in the performance of music relating to, texture, intensity, tone, touch, nuance, note shape and subtleties in pitch and rhythm that cannot be notated. Many of the preceding musical elements cannot be fully detailed on the page and this is where, for the expressive musician, the artistry resides.

The interpretation of written music lies not just in playing the corresponding pitch and rhythm on an instrument, but in shaping and delivering the note in an expressive way (Timmers & Honing, 2002; Sloboda, 1983). For the improvising musician tempo, tone, texture and detailed rhythmic shape are of prime concern, especially in the jazz context, as much of the musical nuance is based on “how” the note is played rhythmically, tonally and texturally. Just as accent in language can denote a geographical region, musical style is largely indicated by nuances in the written note and so for the jazz improviser, accuracy of nuance assumes a more important role in gaining an authentic sound than merely the choice of pitches or notated rhythms. For the jazz musician, the written note is at best a guide, a visual stimulus to create music. Timmers and Honing (2002) state:

“...musical notation does not represent all characteristics of a musical performance, and more importantly...musical notation does not predict or imply all aspects of a performance.” (p. 30)

Just as the written word can illicit the semi-autonomous function of keyboard

typists, so written music may also be conceptualized, the notes are played but the musical significance may not necessarily be grasped and conveyed to the listener. To the improvising musician learning by ear, visual stimuli are less important as they are drawing upon different cognitive processes that in many ways replicate the way languages are learnt (Culicover, 2005). Jazz musicians often learn from the aural cue, and therefore learn the music in its entirety - the structural devices and the expressive content. All of the sonic elements are present in the music (language) when it is first absorbed and these are more likely to form part of an expressive and authentic performance (Woody, 2012). Riley (2004) describes the link between music and language as follows.

“Music is best learned the same way we learn any other language. How do we learn to speak? First we copy the sounds our parents make. Eventually we come to understand the meanings of those sounds. Finally we arrange those sounds to convey our point of view.”  
(p. 30)

In placing the jazz genre amongst the Western art tradition and allowing the reading of music and learning of music by sight as the primary learning and practice stimuli, it is possible that musical expression and artistry may have been compromised. Borgo (2007) states:

“Notation has remained central to many programs that teach improvised music not only for its perceived convenience - it translates well to blackboards and textbooks and can facilitate complex, hierarchical performances easily - but also because it allows instructors to believe that they have an “objective” means with which to evaluate the progress and understanding of students.” (p. 67)

He also states:

“The rhythmic, timbral, expressive and interactive nuances of the music do not translate as easily to paper.” (p. 67)

It is important that the music student and teacher alike understand that the score is limited for conveying all of the elements of an expressive “musical” artistic performance, and that practicing and performing by ear together with the act of improvising may hold the key to becoming not only a more expressive musician, but even a better sight reader (Azzara, 1993; Woody, 2012).

### **2.1.9 Practising for optimal muscle control and accuracy**

The muscles of the body 'remember' what they have learnt. Therefore the ability to control these muscles and input the most accurate information is imperative to the subsequent success of the student. Dras' (2009) research into the area of accuracy is consistent with concepts found in many sports. Dras notes that control of muscles and accuracy in performance can be heightened with slow practice. By implication, this suggests that slow instrumental practice allows for the practitioner to be more accurate with regard to rhythmic accuracy and pitch when programming the brain with the information and so in performance there is a correspondingly more accurate result. Coyle (2010) found that slow motion practice in martial arts, tennis and music, all led to greater accuracy of the tasks being performed in real time when studying practice regimes at the most successful institutions for these activities around the world. Chick Corea (2013) explains how he approaches slow practice and also alludes to his goal oriented practice approach:

"That's the simple explanation of how to practice. I try to do that, and I get better at it, actually, as I get older. I learn more and more how to do that. And how to slow things down, sometimes, to the right speed, in order to understand every little part of it. You don't want to go too fast or too slow, but just at a tempo and pace that you can have success at, and really know that you're gaining on your goal." (Corea, 2013, para.2)

Slow practice allows for conscious thought to be acted on by a movement of the body, as it has time to react. Once patterns have been established and automated then the body can act more independently of conscious thought to achieve incredibly complex sets of movements in fractions of a second. Slow practice also allows the musical and kinaesthetic microscope to focus on individual components of both movement or action and result, thereby creating a positive feedback loop. This allows the student to be more self-regulated in their practice, constantly correcting action, leading to more efficient practice.

### **2.1.10 Self-regulation in practice**

Zimmerman (2010) describes self-regulated learners as goal orientated, self-motivated, pro-active, reflective and reactive, and states that:

“Because of their superior motivation and adaptive learning methods, self-regulated students are not only more likely to succeed academically but to view their futures optimistically.” (p. 66)

Studies into practice, most notably by Ericsson, Krampe and Tesch-Romer (1993), McPherson (2010) and Davidson & Sloboda (1996), indicate that self-regulated practice is more likely to be evidenced in advanced students and professionals than in novice or amateur musicians. A teacher is an invaluable ally in recognizing errors and inaccuracies, and feedback given during lessons is important for the ongoing process of improvement. However, teachers may never actually witness their students practising authentically by themselves, and student’s practice habits are also difficult to assess accurately in terms of gaining authentic data. Recording would seem the best way to assess practice habits, however, student’s knowledge that they are being recorded can influence their behaviour. As a consequence, the results of any study being undertaken may be influenced. (McPherson 1993). It is incumbent on the student to be self-regulated as this is an important characteristic of deliberate practice. Auer (1921) states:

“... the main essential is for him to cultivate the habit of close self - observation, and above all to accustom himself to direct and control his efforts. For it is this mental labour which is the true source of all progress.” (p. 41)

Self-regulated practice requires as much discipline from the student as the professional. Sterner (2005) notes that in order to be efficient and accurate when practising, small amounts of material must be covered in small amounts of time, ensuring it is slow enough so that mistakes are minimized or ideally eradicated. This type of practice requires not only organization but also focus and concentration. It requires that the musician listen carefully and continually to the sound they are producing and the notes they are playing. If a metronome is used, they must also be constantly aware of how their rhythmic accuracy relates to it. Music that is learnt incorrectly, or in an inaccurate way, is likely to be played that way in performance until it is remedied at a later date, and this process can be time consuming because it involves the re-programming of the messages that the brain has automated at an earlier time. Duke et. al. (2009) argue that the ability to fix mistakes is the best indicator of

how quickly and accurately a musician, student or professional, can learn a piece of music. If mistakes are tolerated the first time a piece of music is learnt, and they are re-iterated, a very concerted effort must be made to learn the correct version of the material. Duke et. al. (2009) state:

“The most notable differences between the practice sessions of the top-ranked pianists and the remaining participants are related to their handling of errors.” (p. 217)

The identification and fixing of errors in the practice room could be described as a characteristic synonymous with self-regulated practice. Schunk (2001) states that goal setting is an integral part of self-regulation as it promotes organization, motivation and self-reflection, and these three criteria are often present in the practice of elite jazz improvisers.

#### **2.1.11 Expression from the written note**

Swanwick (2001) notes that expression is a fundamental factor in musical training, and suggests a theoretical basis for the objectives of music education:

- Materials – skill acquisition
- Expression – recognizing and conveying emotion.
- Form – recognizing and/or manipulating structure.
- Value – aesthetic response to music

Laukka (2004) also noted:

“Expression and emotion seem to play important roles in the professional lives of the teachers, and it is suggested that expressive skills deserve more attention in higher instrumental music education.” (p. 45)

Investigation of research into music education suggests that the role of expression in performing music in the formative years has not always been fully appreciated (Deckart, 1984; Kratus, 1996; Klickstein, 2009; Woody, 2011;). Fundamental issues such as playing the right notes, tuning, and sound can become the over-riding concern for a music student at the beginning of their journey. When a student becomes more technically proficient and enters the tertiary learning environment, expression becomes

more of a focus as the student prepares for the professional performance environment. Deckart (1984) argues that expression should be an integral part of the developing musician's career from the beginning:

“Work on the artistic image should begin at the very first stage of learning the piano and note reading. By this I mean that if a child is able to reproduce some very simple melody, it is essential to make this first “performance“ expressive.” (p. 3)

A lack of emphasis on expression in early instrumental music training is perhaps a wider symptom of how music is assessed in performance and practice. Although under the arts banner, music is often regarded as an academic subject and it is often measured against quantifiable criteria as opposed to expression or individuality. The research on expression in music suggests that while it is valued by teachers and by the listener, it is more difficult to quantify or evaluate than measurable criteria such as accuracy in melody, rhythm, harmony, timbre and form (Swanwick, 2001 ;Laukka, 2004). Much of the nuance of jazz relies on the expressive understanding of the music; it would therefore seem prudent to attend to this aspect of the music from the very beginning, especially in jazz education. Borgo (2007) states:

“Conventional jazz education, in my opinion, appears stuck in an information-processing mode. It frequently proceeds with the assumption that students must first master the ability to abstract lower-level features such as intervals, chords and basic rhythmic structures before they can contend with global features such as melodic contours, harmonic tendencies, complex rhythms, or expressive gestures.”(p. 76)

The journey of a professional musician in any style often starts with an emotional connection to music or an instrument. For many professional musicians the emotional connection with music is often the first important moment in their life and is described by Coyle (2010) as ignition. Pat Metheny (1998) describes his first experience of hearing the Miles Davis recording “Four and More”:

“That record changed my life literally within seconds after hearing it...when I heard it, it was like my life changed, it was instant...I used to run home from school to listen to it...there was something about that music that just completely altered my consciousness and looking back at it now, I mean, I must have been a really far out 11 year old because it just, it struck me so deeply that ...everything that has happened since

then is tied to that moment.” (Metheny, 1998)

Consistent in many jazz musicians’ early experience with music is the recurring theme of hearing a master and wanting to imitate their musical language, tone and rhythmic feel. Some may even copy body movement and style if that musician is studied in detail and for long periods of time. This concept of imitation may be defined as modelling (Hewitt, 2001). The concept of modelling is an important first step for the jazz musician and often precedes formal learning, such as technical studies and note reading. Modelling may also provide a gateway to becoming a more expressive musician as the entire expressive quality of the music or a specific performer is being assimilated from the beginning. Eventually, a greater technical understanding of music is acquired and other skills such as reading and technique are given more weight during practice, thus forming a well-rounded expressive musician.

#### **2.1.12 Characteristics of success in learning or practice**

Leonard (1991) describes the path to mastery as a series of plateaus that are broken intermittently by sudden improvements or breakthroughs. Mastery in any area, from sport to business or the arts, requires dedication and a sustained commitment over time. Leonard describes three different types of working personalities: 1) the dabbler 2) the obsessive and 3) the hacker.

The dabbler is initially enthusiastic about new ventures but when the novelty wears off they are quick to realize their ineptitude and move on to another area where new experiences await. The obsessive is results-focused. They are willing to work extremely hard for results, however, once the results stop or plateau, they inevitably burn out and stop practising altogether. The hacker is less concerned with results and is happy to be the eternal amateur.

Hackers never reach a high level of expertise at their chosen field.

These three distinct personalities can occur in isolation or in combination and all can inhibit the learning process. Leonard (1991) describes the plateau as a natural part of improvement where progress appears to plateau and no apparent improvement takes place. Leonard states that this pattern occurs because:

“We have to keep practicing an unfamiliar movement again and again

until we “get it in the muscle memory” or “program it into the autopilot.”  
(p. 15)

In order to improve or have a growth spurt, the movement or skill must become automated. The pattern of improvement and corresponding plateau is just one of the elements of practising which musicians may find frustrating but is a normal part of the growth process.

Although Ericsson et al. (1993) have described the journey of high level performers in relation to practice hours, his research into why practice hours increase during a musician’s career is inconclusive. It appears that at some point, either a conscious decision to pursue an instrument to the elite level is made, or an unconscious shift in the process of practice occurs, allowing the musician to become self-motivated about their practice (McPherson & McCormick 1999). The self-regulating musician may enjoy practising for many hours a day instead of finding practice to be a tedious activity. It is possible that this change is a cognitive shift in the way a student is engaged in practice from moment to moment.

### **2.1.13 Differences in written and aural based musical systems**

Although Western art music and jazz share many similarities, they are also different aesthetically, technically, and in the conceptual demands placed on the musicians. The conceptual variation occurs in one important aspect of jazz, that of ‘improvisation’ (Johnson & Laird, 1991; Benedek, Borovnjak, Neubauer & Kruse-Weber, 2014). This is evidenced by the small number of professionals who successfully work at the elite level across both genres, and the few Western art musicians who improvise in performances. Improvisation was an important part of early forms of Western art music, most notably the baroque period, although improvisation in Western art music largely disappeared after the 1840s. Moore (1992) states:

“To many, improvisatory expression seems threatening, unfamiliar or undeserving of interest. This radical shift in performance aesthetic has occurred without incident and virtually without documentation. One wonders why improvisation has disappeared and why so few scholars have remarked on its disappearance.” (p. 63)

Moore also attempts to reconcile this:



“...the increasing importance of notation as a pedagogical tool and performance aid in the nineteenth century can similarly be explained in terms of the gradual replacement of the patronage musician at the time with the middle class performer.” (p. 71)

It is possible that the overwhelming amount of technical material and repertoire that must be mastered by the Western art musician can leave little time for experimentation and improvisation. Practice techniques that relate to improvisation, and/or playing by ear have largely become associated with the jazz and popular music fields. Musicians using these learning methods are often referred to as ‘self-taught’ or ‘ear players’, and research into their practice has largely been ignored until very recently. On the other hand, research into the cognitive aspects of instrumental practice and more specifically, how the brain memorizes and collates information has been undertaken (Sloboda, 1996; Driskell, 1994; Hallam, 2001; Duke et. al. 2009). More recent work by Klickstein (2009), Sterner (2005) and Bruser (1997) also investigates practice strategies, physiology, time management, the practice environment, motivation, working with others, competition and preparing for performance. All of these researchers are trained in the classical field, and while they present extremely valuable information relevant to all practicing musicians, they do not deal with the primary concern of the improvising musician, which is: ‘How do I practise for an unknown performance outcome?’ Research focuses more on the written note or predictable performance outcomes, and less on being able to play by ear, or improvise. Jazz performer Brian Blade (2011) discussed the challenge of practising improvisation in a recent interview.

“... Sometimes I play song forms, but sometimes I just play time, make this continuous line of different things so that hopefully, in live situations which are so unpredictable and when all this stuff goes out the window, your physical instinct will kick in... Usually it’s the distance from your head to your hands that’s the problem...” (pp. 28-6)

While classical music can be individual and expressive, it draws greatly on reading, technique, reproduction and more specifically, interpretation and memorization skills (Ginsborg, 2004; Hallam, 2001; Lim & Lippman, 1991; Nuki, 1984; O'Brien, 1943; Krausz, 1993; Levinson, 1993). Jazz can and does use similar skills. However, historical and anecdotal evidence from the

most advanced jazz artists suggests that they rely much more on instrument to ear connection and on aural practice methods. These unique performance criteria require specialized practice strategies, although research into this area appears to be lacking. Much of the informed discussion about practicing improvisation is now buried in hundreds of interviews, articles, biographies, and in the many workshops given by the very musicians that have shaped the idiom itself.

#### **2.1.14 The pedagogy of improvisation**

Many of the earliest jazz improvisers learnt predominantly by ear, that is, learning to play what they heard. Once recordings of jazz became more widely available, jazz language was assimilated as musicians aurally transcribed recorded solos. Examples include Roy Eldridge learning Coleman Hawkins' solo on Stampede, and Charlie Parker learning Lester Young's solo on Lady Be Good (Giddins & DeVeaux, 2009). This imitative, ear-based approach is an essential element in the development of the jazz improviser (Madura, 1996; May, 2003; Watson, 2010). By listening to a recording many times and imitating it, many nuances of sound, rhythm and style are assimilated, some unconsciously. By contrast, solos learnt only from musical score can lose much of the nuance present on the recording (Borgo, 2007). Priest (1989) investigated the nature of playing by ear in the music classroom and suggested a possible model based on imitation and invention. Watson (2010) completed a comparative study of aural versus notated learning methods in the teaching of jazz improvisation. Both found that learning by ear, at least some of the time, was extremely beneficial for students in the areas of expression, creativity and especially those learning to improvise.

Early practical texts such as Louis Armstrong's "125 Breaks for Jazz Cornet", tended to be collections of motifs or "licks" used by advanced musicians. Formalization of jazz improvisation began to take hold with the advent of University Jazz courses, especially in the United States during the 1960s and 1970s (Prouty, 2005). Borgo (2007) states:

"Notation has remained central to many programs that teach

improvised music not only for its perceived convenience-it translates well to blackboards and textbooks and can facilitate complex, hierarchical performances easily-but also because it allows instructors to believe that they have an “objective” means with which to evaluate progress and understanding of students.” (p. 67)

In conjunction with the predominance of the written score in teaching improvisation, the implementation of improvisation theory also formed a central role in university jazz programs. One such theory was George Russell’s ‘Lydian Chromatic Concept of Tonal Organisation’ (Russell, 1959), which organized harmony based on the Lydian scale or fourth mode of the major scale. In referring to Russell’s theory of modal improvisation, Priestly states:

“It is a pity that widespread misapplication of [George] Russell’s theory by jazz educators has entrenched the belief that for every chord there is a scale and that knowledge of these is essential for improvising. The pathetic results of this kind of teaching tell their own story: as the old blues song put it, “You’ve got the right key, but the wrong keyhole.” (p. 912)

Priestly places blame not with Russell’s theory, but its ‘misapplication’, highlighting that improvisation cannot be taught only in a theoretical way but must also be assimilated intuitively, as was largely the case before improvisation theory existed.

Other texts have played an integral part in the landscape of improvisation pedagogy. Mostly these deal with scale chord harmony and/or specialized techniques that may be applied to certain rhythmic or harmonic environments. A well known example is material by Abersold (1974). These texts are generally presented in a play-along format, allowing students to improvise with suggested written scale choices over common harmonic environments. These play-along recordings, and others of a similar nature have been used by aspiring musicians for many years, and are a useful tool, however, there are limitations in the skills that are gathered by working with these materials. Firstly, the presentation of the material in written form is an immediate disadvantage to the student wanting to learn by ear, as there is an inclination to memorise and repeat scales or portions of scales when improvising. Secondly, although the play-along often features experienced backing musicians, there is no interaction between the soloist and the rhythm section,

a key element of group improvisation. Other sources such as Reeves (2000) 'Creative Jazz Improvisation' and Goldsen's (1978) 'Charlie Parker Omnibook' present transcribed solos that may be learnt as a way to assimilate the jazz language. Once again, the material is written which encourages visual learning and lessens the impact of an ear to instrument learning process. A number of improvisation texts utilize a more compositional and experimental approach such as those written by Bergonzi (1994) Schneider (2016) and Crook (1991). Importantly, Schneider (2016) and Crook (1991) include sections that describe their concepts relating to the mental processes and philosophy of improvisation. However, these texts are notable exceptions to the myriad of improvisation books that largely apply a chord scale concept to the improvisational process. Interestingly, many harmonic theories become redundant to the drum set improviser who is dealing with broader improvisation concepts such as rhythmic and motivic development, form, call and response and dynamic contrast.

#### **2.1.15 Early jazz improvisation pedagogy**

From the mid 20<sup>th</sup> century, Shinichi Suzuki pioneered a method that relied mainly on three strategies; learning by ear, playing in groups and listening to music from a very young age. This has become known as the Suzuki method and it is worthwhile considering this learning method, as it is largely ear based (Hermann 1981). The Suzuki method aligns closely with the early experience of jazz musicians in its three learning strategies. Listening to music for enjoyment and learning the language is encouraged, especially in communities where music forms part of the social and cultural fabric. New Orleans was one such environment in the early 20<sup>th</sup> Century. This city featured opera companies, society or brass bands, and many musicians playing the blues and ragtime (Giddins & DeVaux, 2009). The first two great New Orleans jazz improvisers, Louis Armstrong and Sidney Bechet, both started early and initially learnt their instruments by ear (Schuller, 1968). They were both also fortunate to receive guidance from others, once they had gained a rudimentary knowledge of their respective instruments, and were brought up in a musically collaborative environment where older musicians supported or mentored younger ones. Each new stylistic innovation fostered a

community of jazz musicians who in turn influenced a new generation; the Chicago school of the 1920s, and the beginning of the Be-bop era in New York in the mid 1940s are two such examples. The recording industry also played a major role in the dissemination of the jazz tradition and the development of the language of jazz. The list of great jazz musicians who learnt solos from recordings is well documented (Giddins & DeVeaux, 2009). The contributions of these musicians occurred before any formal university jazz courses existed and before instructional books about the process of learning to improvise had been written.

Another defining characteristic of jazz improvisation relates to its performance setting. Improvisation is influenced by what others are playing in the moment (Borgo, 2007). There is interplay and communication between the members of the ensemble. Erskine (1987) states:

“There’s no substitute for playing experience, and by playing experience, I mean playing with other musicians. No one can make a career out of playing drums in the basement. The drums are an ensemble creature: We have to interact with other musicians. This is the true joy of drumming. While it is fun to play the drums in a solo setting, that’s not going to be the bulk of the playing situations that you’re going to be in.” (p. 91)

In terms of practising improvisation, the ensemble-based nature of jazz is an important element to consider. Interaction between ensemble members cannot be practiced individually, and so playing with others becomes a necessary part of the improvement process. By interacting with others musically in an improvised situation, the practice process is tested for its malleability and integrity. The individual must at all times adjust to the direction of the ensemble, rhythmically, harmonically and aesthetically. This skill is described by Kratus (1996) as elite improvisation. At this level in Kratus’s developmental model, the improviser is fluid and has in-depth knowledge of specific stylistic conventions or language of an improvisation. This level would be unattainable without the assimilation of language through the transcription process. The transcription process also provides another benefit as the transcriber listens many times, not just to the soloist but also the rest of the ensemble on the recording, and so may learn the conventions

of group improvisation and interplay.

### **2.1.16 Charlie Parker case study**

When reviewing the careers of musicians who have made a contribution to jazz, the overwhelming weight of evidence points towards the amount of deliberate practice as being the main factor in their success. There is generally a time period in the elite musician's career of constant and sustained practice. Renowned jazz alto saxophone player Charlie Parker practised constantly in his formative years. He stated, in an interview with Paul Desmond in 1954, that he practised 11-14 hours every day for three to four years. Even if Parker had practised only eight hours a day for four years, he would have easily surpassed Ericsson's 10,000 hour threshold. Charlie Parker presents an insightful case study because, initially, his ability as a player was regarded as average. As stated by Giddins and Deveaux (2009):

“Parker didn't seem at first to have any special gift for music. He played baritone horn in his high school marching band, pecking out notes in the accompaniment. Eventually, he picked up the alto saxophone, teaching himself to play simple tunes like Fats Waller's “Honeysuckle Rose” by ear. When he tried to sit in on Kansas City jam sessions, though, he met only humiliation. One night, after he botched up “Body and Soul” the drummer Jo Jones gonged him out by throwing his hi-hat cymbal on the floor. “Bird couldn't play too much in those days,” recalled one musician, “and he was mad about it too.” (p. 284)

The key moment in his development seems to have been a three month period spent on the Ozarks in the summer of 1937, practicing and studying with other more technically advanced and experienced musicians. More importantly, he aurally transcribed Lester Young's solos from recordings. Russell (1973) states:

“The records were Charlie's most important subject for study...Charlie learned each solo by heart, replaying the powdery grooves, listening for the notes through the increasing hiss of surface noise...He slowly committed each of the Lester Young solos to memory.” (p. 91).

Russell also quotes Gene Ramey:

“From a laughingstock Charlie had made himself into a saxophonist worth listening to...the difference was unbelievable.” (p. 93)

Parker's experience also reflects the career of many other jazz musicians

whose formative years were spent listening to music and transcribing improvised solos from recordings. Kratus' (1996) model of improvisation recognizes key elements in the journey. He states at level six, stylistic improvisation, that:

“Students can benefit from analysing and imitating performances in a given style.” (p.35)

His comments understate the central role that listening and imitation play in developing the stylistic nuance of the jazz improviser. It would appear from the literature, as well as from accounts of professional improvisers themselves, that students can only learn to perform the stylistic conventions of jazz by listening to recordings and that further, this should be stressed in any model of teaching jazz improvisation. However, Kratus also states that at the preceding level five, students may learn some “clichés” or tricks of the trade. It is not clear whether these should be learnt from recordings or from texts. Improvisation text-books began to appear from early in the history of jazz and, although these may be instructive, improvisers who have reached the elite level are more likely to have learned by listening and imitation, so as to improvise in a more intuitive fashion as Brecker states:

“If I heard a lick that I liked, I’d steal it, you know, and ah eventually, you know my memory is not so good, so I’d forget it, and it would come out in some other weird bizarre way a few months later. I found that it was usually two months... it was never really a conscious process. I was never one of those people that could learn something and then play it that night... Music for me is largely intuitive”. (Brecker, 1984)

As Brecker alludes to, the use of licks, or motifs of jazz vocabulary, when improvising occurs on an intuitive level for the master improviser. The less advanced player may attempt to use motifs in a more conscious way, plugging in phrases one after the other to form a complete improvisation. Conscious motif-based improvisation and the processes of learning in this way may be counterproductive, neglecting other key areas in the jazz tradition such as macro structure, flow, individuality, interplay and internalizing jazz nuance especially in terms of rhythm (Borgo, 2007).

### **2.1.17 Summary of key points in part one**

Part one investigated the topic of practice in relation to several key elements and these are summarized as follows. A musician's career may initially begin with a formal note-reading based education or a more ear based approach, and the latter is strongly linked to musicians who become improvisers. The research suggested that although the amount of time was a critical factor in reaching a high level of performance, practice strategies were also implicit in improving at a constant rate. Technique was also investigated and its influence on the efficacy of jazz improvisation was found to be important, although it may also be seen as an inhibitor if scales and arpeggios are stressed more than genre specific exercises. Memory, although less of a concern for the jazz improviser, was found to be a common theme in music research and so was discussed as a practice consideration for the jazz improviser. The role of written music in jazz was also discussed, given that improvisation is at its core an aural form and the use of score may be inadequate to fully describe all of the expressive details of the music. The chapter also examined how jazz pedagogy developed through its early years, and how the advent of university jazz courses steeped in a Western art tradition may have steered the teaching of the genre away from some of the traditional learning methods. Charlie Parker was also examined as a case study of an innovative and technically advanced improviser who had developed using more informal and ear based learning methods. Part two of the literature review now investigates the mental processes associated with motivation and goals and how they may benefit or hinder the practice and performance of improvisation.



## **Part 2**

As mentioned above, this part focuses on the mental processes associated with motivation and goals and how these can influence the experience of practice and subsequent performance outcomes. It also examines the mental states experienced by jazz musicians who improvise at the elite level. Each of these topics is now dealt with in turn.

### **2.2.1 Pathways to success in practice and performance, motivation and goals.**

Both the early and current research into the role of practice in the development of performing musicians establishes an inextricable link between the number of practice hours, the type of practice, and the level of achievement reached. There does, however, appear to be some conjecture about the role of psychology in instrumental practice and its place in the development of the elite musician. Recent research has analysed how different practice strategies can influence the motivation and efficacy of practice. However, there is little real understanding of the motivational triggers behind some instrumental students practising for significantly longer periods of time and more consistently than most other students. This is summed up by two apparently contradicting claims in the literature. Ericsson et al. (1993) claim that:

“...deliberate practice requires effort and is not inherently enjoyable. Individuals are motivated to practice because practice improves performance. In addition, engaging in deliberate practice generates no immediate monetary rewards and generates costs associated with access to teachers and training environments. Thus, an understanding of the long-term consequences of deliberate practice is important” (p.368).

Conversely, McPherson and Renwick (2001) state that:

“Students who are more cognitively engaged while practicing not only tend to do more practice, but enjoy learning more and are also more efficient in their practice.” (p.148)

It appears that while practicing strategies can influence the enjoyment

experienced during practice, this does not necessarily explain why some students and professionals are motivated to practise for many hours over an extended period and others are not. Csikszentmihalyi (1990) asserts that activities with defined achievable goals that require the use of specialized skills developed over time are likely to induce a state of optimal experience he describes as 'flow'. Musicians who practise with goals in mind and are constantly challenging their skill base could potentially enter this state. Thus, practice would become an enjoyable task enabling the long hours of work necessary to reach the highest level as a musician. Liebman (2013) states that all musicians who have made a contribution in the jazz field worked hard at their craft:

“The only true musical genius is Mozart, everybody else worked, Trane worked, Bird worked, even Miles worked in his own way.” (Liebman, 2013, para.13)

Mozart's development as a prodigy is discussed in Howe (2001) book 'Genius Explained'. He claims Mozart also put in the requisite 10,000 hours, before the age of 15. Other studies into expert performance have found similar results in pursuits such as math (Gustin, 1985), swimming (Kalinowski, 1985) and long distance running (Sacks & Sachs, 1981). Anecdotal evidence suggests that many students are mentally underprepared for the practice commitment required to reach the highest level. Practice is often measured in relation to time. This over-arching concept of practice seen as an amount of time may distract students from a goal-oriented focus, either in the long term or in the daily practice session. Instead, a mindless filling of time becomes a habitual and ultimately unrewarding process. Ericsson (2008) discusses this phenomenon:

“The lack of inherent reward or enjoyment in practice as distinct from the enjoyment of the result (improvement) is consistent with the fact that individuals in a domain rarely initiate practice spontaneously” (p.369).

A small percentage of students can, and do, practise deliberately and for long periods of time. These students generally go on to successful careers as performing musicians and are often described as being 'talented'. The word 'talent' is often used to describe and conceptualize outstanding performance.

Coyle (2010) and Gladwell (2008) both explain the phenomenon of 'talent', or unusual spikes in human endeavour, as either the result of environment or culture, a predisposition to a certain skill and practice, or comparatively large amounts of time spent on a certain task. Music students may start early and initially not be outstanding, but at some point practice assumes a more goal-orientated focus. Gagne (2004) states that talent is a mixture of predisposition, gifts in certain areas, and personal traits. His model "The Differentiated Model of Giftedness and Talent" (DMGT), describes how natural gifts or abilities are developed with practice to a high level that is recognized as 'talent', and explains how three types of catalysts can influence the development of these skills in a negative or positive way. These are:

- Interpersonal - physical and psychological traits that may benefit or hinder talent development.
- Environmental - factors such as personal relationships, home or school environment and significant events.
- Chance – any random factor such as genetic endowment or an environment advantageous to talent development.

Gagne's (2004) model suggests that certain interpersonal traits with regard to temperament allow a person to be motivated and develop their skills through learning and practising.

"Among the psychological catalysts, motivation and volition play a crucial role in initiating the process of talent development, guiding it and sustaining it through obstacles, boredom, and occasional failure." (p. 2)

Coyle (2010) and Entine (2012) also describe talent as a set of circumstances that combine with a predisposition, or cultural idiosyncrasy, like the top 498 records for the 100-metre sprint being held by people of West African descent. Predisposition is more difficult to perceive in the musician. The ability to recognize and recreate a specific pitch (perfect pitch) is one such predisposition, but is no guarantee of musical success (Ericsson et al., 1993). A daily regime of practice is still the only proven method in achieving the highest level. Kaufman (2014) states that the 'talent' argument is often presented as "innate talent versus deliberate practice" and so one is compared to the other in research data. A model that may account for the complexities of

skill acquisition in a more holistic way could be predisposition x environment x practice time = success. This would allow researchers to compare the influence of these three important factors as opposed to only considering predisposition or practice.

Sterner (2005) describes the paradox of practising with the intent to improve at a specific skill:

“When you focus on the process, the intended product takes care of itself with fluid ease. When you focus on the product of your effort, you immediately begin to fight yourself and experience boredom, restlessness, frustration and impatience.” (p. 17)

Sterner (2005) suggests that the key to understanding how to improve at anything, with ease and enjoyment, is to be focused on the present moment. He calls this concept ‘mindful practice’. The incorporation of ‘mindful practice’ could enable musicians to practise for longer periods of time and with a deeper sense of focus and is similar to Csikszentmihalyi’s concept of ‘flow’. According to Csikszentmihalyi (1990) one of the keys to practising with a deep focus is the establishment of clear goals and immediate feedback. These two elements enable the most basic of motivators to exist, that is, intrinsic reward. Working towards an achievable goal and reaching it in the shorter term of the single practice session creates a positive cycle that can become self-sustaining. Paradoxically, having clear goals that relate to future outcomes can allow for a more focused mindset as more mental energy can be expended on the present moment. It is in the present that sound, mechanical feedback and visual feedback all reside, and these can become powerful learning tools for the practising musician.

### **2.2.2 Cognitive process in instrumental practice**

Two of the most commonly asked questions of master improvising musicians are, ‘What do you practise?’ and, ‘How much do you practise?’ There appears to be commonly held beliefs that the type of material and the amount of time are the main characteristics of success in elite instrumental performance. This is not supported by the current research (R. A. Duke et al., 2009; K. A. Ericsson, 2007) nor accounts for high level improvisers (Crook, 1991; Werner,

1998). Every musician has practised different material in order to become successful. However, strategies for dealing with musical problems, or approaches to practising, are not always communicated to students. A small number of texts and web sites dealing with the process of practising an instrument are available, but are far outnumbered by method books and web sites that are, for the most part, all recent publications. The majority of recent resources include very little in terms of specific instructions for how to work on the material, or pieces. More specifically, they largely omit the area of psychology or focus during practice. The importance of being focused while practising is emphasised by many advanced musicians and professional sports people. Without focus, it is possible that drills or exercises designed to improve performance may actually hinder it, as they are performed incorrectly or with inaccurate execution (Auer, 1921; Hidalgo, 1993), thus resulting in detrimental effects on future performance.

Focused practice has proven to be a valuable tool in improving performance (Andre & Means, 1986; Druckman & Swets, 1988). Galper (2013) alludes to the importance of focused practice:

“ If you are not focused on what you are working on then you are not learning anything, you’re just wasting time.” (Galper, 2013)

Research into instrumental practice and motor skills has ascertained that focus during practice does affect its outcome and effectiveness (Driskell, Copper & Moran 1994; Perry, 1939; Duke et. al. 2009). Duke, Cash and Allen (2011) found that pianists who focused on the resulting sound of their physical movements were much more accurate in the resulting performance. Ericsson et al. (1993) state:

“In the absence of adequate feedback, efficient learning is impossible and improvement only minimal even for highly motivated subjects. Hence mere repetition of an activity will not automatically lead to improvement in, especially, accuracy of performance (Trowbridge & Cason, 1932).” (p.367)

Wollner and Williamon (2012) state that awareness of three different senses is critical for a musician in order to obtain the type of feedback necessary to judge their methods and progress. These are auditory awareness, kinaesthetic awareness and visual awareness. Auditory awareness involves actively

listening to and analysing the sound that is produced. This relates to pitch, volume, rhythmic accuracy, nuance, interpretation and tone. Kinaesthetic awareness relates to the way the instrument feels in the hands, such as grip tension as well as overarching tension anywhere in the body. Visual awareness can be attained using a mirror or visual recording device, and in this way allowing the performer to analyse body posture and efficiency of movement. This is especially useful for activities where the motion of the task is integral to gaining a desired result; sport, dance and instrumental performance are all areas that can benefit from kinaesthetic and visual feedback.

There has been little research into the role of these three senses in instrumental practice. Which of them is the most effective, and how does each play a role in the practice of elite musicians, especially improvisers? While Duke et. al. (2011) state that focus on movement and aural awareness produces a better result in instrumental practice, obtaining accurate data about what somebody is thinking while practising is problematic.

In sport, Rotella (2007) describes two different approaches to deliberate practice in relation to golf. The training mentality, where a conscious thought process is instituted when learning a drill or specific skill, and the trusting mentality, where the mental side of the game becomes the main focus. The player practises in context, as if playing in a real game. They are, in reality, practicing the cognitive state in which they play the game. This second mode of practicing mirrors the jazz improvisation context, where musicians may play along with records or go to a jam session. This not only tests how their practice is working in context, but also tests how real life situations affect their playing. In musical terms, Ericsson et al. (1993) describe these two states as formal and informal practice, with the former dealing with scales, technical exercises and repertoire, and the latter, with music that has already been thoroughly learned or, with improvisation. They state that while high achievers are more likely to practice in an informal way, they also do a significant amount of formal practice on scales and exercises. The balance of formal and informal practice is offset by the greater number of hours that high achievers practice. Ericsson et al. (1993) state that practice is not inherently enjoyable

and so requires outside influence for it to occur. The author would argue that to many musicians, deliberate practice can be enjoyable and that this enables them to undertake the many hours necessary to reach the elite level in their chosen field. Csikszentmihalyi (1990) describes eight factors that can be employed when practising that may lead to a deep sense of enjoyment:

“First the experience (enjoyment) usually occurs when we confront tasks we have a chance of completing. Second, we must be able to concentrate on what we are doing. Third and fourth, the concentration is usually possible because the task undertaken has clear goals and provides immediate feedback. Fifth, one acts with a deep but effortless involvement that removes from awareness the worries and frustrations of everyday life. Sixth, enjoyable experiences allow people to exercise a sense of control over their actions. Seventh, concern for the self disappears; yet paradoxically the sense of the self emerges stronger after the flow experience is over. Finally, the sense of the duration of time is altered; hours pass by in minutes, and minutes can stretch out to seem like hours.” (p. 49)

By adapting practice conditions to meet the criteria set out by Csikszentmihalyi (1990), it is possible that practice can be more enjoyable, and that other factors apart from the reward of improvement may be contributing to musician’s motivation to practice for long periods of time.

### **2.2.3 Mental practice**

One aspect of the cognitive process of practising is the use of mental practice or rehearsal of a skill without actually physically playing the instrument. Research into this area has shown that mental practice does enhance learning of a motor skill (Zecker, 1982; Driskill, Copper & Moran, 1994; Mendoza & Witchman, 1978). However, the relationship between mental practice and physical practice is inconclusive. An early study by Ross (1985) suggested that variables relating to length of practice time, ratios of physical to mental practice and the level of both task and skill require further study. Bergonzi (2012) alludes to how mental practice can focus attention on specific elements of performance and more importantly, aid in concentration and focus:

“And I find when you don’t have an instrument ...you have to be even more centred...more concentrated, you can’t doodle, play a hot lick, play a tune or be enamoured with your sound; physical sound that is. And you have to really be there, you can’t think about what I’m going to have for lunch, or that I’d like to take my girlfriend out for dinner

tonight...All those things you have to eliminate or keep turning the station back to the one that you're on, which is practicing music."  
(Bergonzi, 2013)

It would appear that there may be some value in mental practice, but more research is needed in this area to fully establish how effective it can be, as opposed to practising with an instrument. It is likely that mental practice enhances physical practice as it can be done at any time and is not compromised by fatigue and other physical issues that may occur when playing an instrument.

#### **2.2.4 Mental focus in practice and performance.**

In researching the concept of peak performance, either in sport or music, psychology is cited as an important factor. The field of psychology has become more pervasive in professional sport since 1980's and this is also true of music psychology. Green's (1986) book, 'The Inner Game of Music' is an early example and is centred on awareness of the concept of two selves, where self one is the inner judging voice or ego, and self two is the inner genius - the natural self. Self one can also be thought of as the conscious or analytical left-brain that processes information about tangible aspects of musical performance. Self two is the subconscious or creative right brain that deals with the intangible aspects of music. Werner (1996) talks about the phenomenon of playing from the inner space in his book "Effortless Mastery". Werner describes the inner space as the part of each person that contains genius, innateness and pure joy. He also describes the ego as something that guards the door to inner creativity. Werner and Green both recognize two opposing cognitive states or ways of thinking, one of them analytical or judgmental, and the other intuitive and non-analytical. The non-analytical state may be described in many ways; 'flow' Csikszentmihalyi (1990), 'self two' Green (1986), 'the inner space' (Werner, 1994) or 'mindfulness' (Dali Lama , 2002).

The concept of "mindfulness" was first introduced to a wider Western audience in 'Zen and the Art of Archery' (Herrigel , 1948). 'Mindfulness' is difficult to define in academic terms (Caspi & Burlinson, 2005). Aksnes and Wittet (2006)



describe this as the 'Daphne dilemma':

"The more creativity is pursued with logic deductive thinking, the less likely it is to generate understanding and insight into creativity." (p. 2)

Although this mind state may be difficult to conceptualize or analyse in scientific terms, it is alluded to by elite performers from many different fields, including master improvisers. Jerry Bergonzi talks about the cognitive states he experiences while practising:

"Very often people ask me, how I practice...and this sort of thing, you don't even need your instrument, I could be sitting there...I do a little bit of deep breathing and... try to relax my mind and clear it up. And I think about for example a preliminary thing I might think about seeing a picture of me playing music having a lot of joy playing music...having fun, I picture my self surrounded with good vibes or white light or whatever you want to call it. And at that point, I even practice long tones. I'll think, well, I want to practice my sound, how much treble is it? How much mid-range-how much bass, does it project, what colour is it, how dark is it, is it spread is it centred...and at that point I might practice the same thing, I might do 9,7 on a tune. And I find whenever I make a mistake in my mind, the same happens with the saxophone...But this is the sort of thing that, why we're all addicted to playing this music, were addicted to the moment, we're addicted, to being in the present tense playing this music and all these exercises are meant not to get you out of the moment, which they can if you have to think about it but once you get it down it just frees you up so you don't have to think.

And I'm not thinking about, gee, I don't like my reed or this weird acoustics in this room, or the drummer's dragging or the drummer's rushing...All of that is interference. So you just get to the task at hand and create stuff to practise mentally." (Bergonzi, 2013)

Bergonzi focuses on the thought process as involved in practising and the importance of efficient, enjoyable and productive practice. The cognitive state described by Werner and Bergonzi is also noted by Ericsson et. al. (1993):

"Recent analyses of inherent enjoyment in adults reveal an enjoyable state of "flow," in which individuals are completely immersed in an activity (Csikszentmihalyi 1990). Similarly, analyses of reported "peak experiences" in sports reveal an enjoyable state of effortless mastery and execution of an activity (Ravizza, 1984). This state of diffused attention is almost antithetical to focused attention required by deliberate practice to maximize feedback and information about corrective action." (p. 368)

As Duke et. al. (2009) state, the goal is to practise perfectly, which requires

focus on the sound being made by the instrument. Inner dialogue can disrupt this and make it difficult to really hear the true sound of the instrument or be aware of the kinaesthetic elements of instrumental practice. The past and future interrupt the present where the sound resides and this can only be alleviated by focus on the present moment.

The cognitive state of elite sports-people has been studied in much greater detail than in the area of music and may thus prove fertile ground for future discoveries. There are many similarities between sports and improvisation in jazz and these can be distilled down to two main concepts:

1. The speed and immediacy with which the brain must operate to perform the tasks, in other words, tasks must be automated or second nature.
2. The unanticipated or improvised nature of what will be performed.

Elite musicians describe a process of freeing one's mind of conscious thought or judgment and expressing emotion through music. However, Werner (1996) describes how many musicians tend to judge their own improvising when playing and this inhibits freedom and expression:

*"You start a nice tasty solo and a little voice goes off in your head, "It isn't good enough! I have to play hipper. This should burn more. It has to be more complex..." or some thought like that. Whatever comes easily isn't good enough because, in your mind, you're not good enough."* (p. 54)

Werner's description of negative conscious thought is a common mode for many improvising musicians; however, practicing in a certain way may change this. When the goal of instrumental practice is to prepare the musician for performance and be contextual then it would seem likely that practice itself should also be conducted in that same cognitive state. Crook (1991) states:

*"Regardless of how much you practice, you'll never retain enough to learn something if your mind is not where the learning takes place, in the present."* (p. 16)

### **2.2.5 Playing by ear**

Authentic improvisation (improvising without conscious self-judgment) requires the ability to erase any expectation of a defined outcome, or any preconceived

thought about what form the music will take, perhaps beyond the parameters of harmonic structure, instrumentation and the location of the performance. Musicians discarding predefined harmonic and rhythmic structures characterized the free jazz movement of the 1960s. Herein lies the great challenge of truly improvised music; creating structured compositions in present time from no written music. Improvisation is indeed one of the defining elements of the jazz tradition and it is this element that this project focuses on. Many of the practising techniques used by master jazz musicians may not be considered practice at all as they are more aligned with actual performance or play (Ericsson et. al. 1993) and in many cases *are* performance. Brown (2002) quotes Randy Brecker who states:

“After years of playing by ear, I developed quite an extraordinary ear. I played along with records before there were play-along records. This is the one kind of music where you must listen. It has to be internalized so that it becomes second nature.” (p. 14)

Brecker’s comment alludes to the importance of practising in context as much as possible when practising improvisation. Playing along with records would seem to be the best way to develop the ear to improvise in a group setting, as it most closely resembles this activity. Play-along recordings have become an important learning tool for younger improvising musicians and can be an effective way to practise improvisation in context, however, the group interaction that is present in jazz can only be practised while playing with others.

### **2.2.6 Cognitive states in the improvising musician**

One of the most studied solo transcriptions in jazz pedagogy is John Coltrane’s improvisation on the tune ‘Giant Steps’. Elliott (1995) comments on Coltrane’s improvisation on ‘Giant Steps’:

“The originality, complexity and speed of Coltrane’s doing and making is astonishing. This is clearly not ‘spontaneous’ music making in the sense of thoughtless, unpremeditated or unconscious activity. It is the opposite. Coltrane’s solo is thoughtful, premeditated, studied and conscious.” (p.4)

Elliott’s statement may be construed as misleading in that his concept of improvisation is one of cognition, being able to think formulaically and

analytically at great speed. Master jazz improvisers themselves know that something more profound is happening. The conscious processes have largely become automated, as the acts of rational judgment and conscious thought are too slow for true improvisation. Johnson-Laird (1991) states that:

“The essential psychological feature of musical improvisation, whether it be modern jazz, classical music, Indian, African, or music of any other sort, is that the musicians themselves do not have conscious access to the processes underlying their production of music” (p. 292).

The great improvisers simply hear a melody or musical line, and the mind and body create it much like a conversation. It still relies on a lot of prior work on the structures and patterns that these improvisations are based on. Coltrane worked on the ‘Giant Steps’ harmonic structure for two years before recording it, and was a renowned practice obsessive as Jimmy Heath alludes to in Porter’s (1998) book “John Coltrane; His Life and Times”:

“When I’d go down to his apartment in the summer he’d be stripped down to his boxer shorts. He’d be sweating and practicing all day...Anything Trane grabbed he would work on it until he got it.” (p.64)

Master improvisers talk about the brain/instrument connection. It is this connection that becomes the conduit in the art of expressing an emotion or telling a story using a musical language. Herbie Hancock (2009) stated:

“Miles would say, “When you’ve been playing 16 or 17 years, you get to a point where it’s mind over matter. If you want to play something because you hear it, your fingers and your lips automatically do it.” So I decided to try it and it worked. You can practice to learn a technique, but I’m more interested in conceiving of something in the moment. Jazz is about being in the moment. Miles used to say, “I pay you to practice on the bandstand.” When you struggle to reach for something you don’t know, that’s where the most interesting stuff is.” (Hancock, 2009, interview)

Galper (2013) states:

“At bottom, is this concern about how you sound, and that puts you into the intellectual state of mind. There seems to be this over-riding desire, this necessity, to evaluate our playing while we’re playing.

...So what you’re trying to do when you are trying to judge your playing while playing is hear two different ways, you’re trying to hear yourself as if you’re on a record and at the same time you’re trying to hear what

you play, you can't do that.

...If you're trying to play what you know then you're practicing, I'm not playing till I'm playing what I don't know." (Galper, 2013, clinic)

If this is indeed the case and deliberate quality practice is at its core a contextualized activity, then understanding the cognitive state experienced by elite improvisers would seem an important factor in quality practice.

Furthermore, understanding how musicians attain this state during both performance and practice would be of great benefit to the jazz community and could form an integral part of the teaching of the art of improvisation.

### **2.3 Chapter Summary**

The literature review was organized into two parts. Part one revealed a number of key areas related to instrumental practice and how they affect performance outcomes especially with regard to improvisation.

The amount of practice is a crucial indicator of future success as revealed in Ericsson's et al. (1993) study, and the design of practice should also be considered, as deliberate practice was found to be an integral factor in improvement. The literature also revealed that musicians who learn primarily by ear throughout their career were more inclined to build a strong ear to instrument connection essential for the elite improviser. However, the chapter also found that much of the literature is situated in the Western art genre context and may not strictly apply to practising to be an improviser as it largely deals with the reproduction of written material. Finally, the literature identified two modes of instrument learning. One being learning by ear and the other, memorizing written passages or pieces of language in order to consciously construct a solo improvisation. Most improvisation method books are primarily based on patterns and scale to chord theory, although recent works by Hal Crook and Ricky Schnieder are notable exceptions.

Part two investigated the mental processes of elite improvisers and found that improvisation at this level is more automatic and intuitive rather than conscious or planned. This is described by musicians and other skill-based practitioners as "the zone", "the space" or "being in flow". Mental practice routines and focus in practice can greatly improve results and enhance the enjoyment and

productivity of practice. Improvisation is a more intuitive activity at the elite level, and unique practice strategies are required in order to operate in this state.

## **2.4 Conclusion**

Practice is integral to improvement in any human endeavour. The role of practice and how it has affected performance has recently been the domain of research in many fields, including music. With an increase in research and technology allowing a closer look into what strategies are successful in producing outstanding performance results, practice can be honed into a more efficient design. The music student may be unaware of the impact that different strategies can have on their practice and so may employ techniques and approaches potentially detrimental to their development and improvement. This project intends to describe a method that draws from studies done in the area of skill acquisition, the accounts of some of the leading jazz improvisers, and from the psychology of practice that has recently begun to make an impact in education. The process of improvisation in the jazz genre is little understood by those who are not musicians in this field, and so it is from those master improvisers and the few researchers that do have experience in the jazz genre that the most informed insights are derived. Chapter three now introduces the research itself, and the method of inquiry chosen for the study, as well as the participants, instrument and data analysis.

## **Chapter Three – Method of Inquiry**

### **3.0 Introduction**

Chapter two examined the literature relating to instrumental practice, and more specifically in terms of practice methods and techniques best suited to learning how to improvise in the jazz setting. Due to the intangible nature of jazz improvisation, research into optimal practice strategies is scarce. What emerged from the literature review is that mental process is an integral part of successful improvisation performance and also can influence the practice of improvisation.

Chapter three now presents the rationale for how the research was undertaken. It commences by examining the different methods of enquiry including their strengths and weaknesses, before arriving at the research approach best suited to answering the research questions. It then describes the participants and the research procedures in detail.

### **3.1 Background**

The main reasons for conducting this study are to ascertain not only what practice methods elite improvisers consistently use, but also what mental states are experienced during practice and improvisation. Although the specifics of instrumental practice have been researched from many different perspectives, the whole journey of the improvising musician as a topic is under researched. In order to understand the process of becoming an improviser, it is important to understand the research approach best suited to answering the following research questions:

1. What practice methods and strategies are utilized by elite jazz musicians as they develop skills in the art of improvisation and how do these methods and strategies differ from those associated with non-improvised or pre-determined musical pieces?
2. What mental processes do elite jazz musicians use in order to reach their full potential as improvisers?

## **3.2 Method of inquiry**

When deciding on a research methodology best able to answer the research questions, it is necessary to examine the suitability of the two main approaches. The two most common research approaches are quantitative and qualitative methods of inquiry.

### **3.2.1 Quantitative methods of inquiry**

Quantitative research is also referred to as traditional, experimental or empiricist and is promoted by authorities such as Comte, Mill, Durkheim, Newton and Locke (Smith, 1983, et al.; Creswell, 1994). Quantitative research is often described as positivistic and deductive. A theory or hypothesis usually arises from a well-researched area and is tested using a carefully designed instrument; this may be a questionnaire or survey. Theories are tested broadly to see how they apply to many people at many sites and samples are drawn from a random group in order to “reduce error and cancel bias” (Newman & Benz 1998). Creswell, Plano & Clarke (2007) state that:

“In quantitative research the intent is to see how data provided by participants fits an existing theory (i.e., model, framework or explanation)” (p. 28).

Data is generally produced as numerical information, or statistics, and care is taken in the design of the instrument in asking closed, focused questions that relate variables to each other (Creswell, Plano & Clarke, 2007). Validity is afforded through the correct design of an instrument and precise data analysis. The researcher often remains in the background, also in order to remove bias (Creswell et. al., 2007).

### **3.2.2 Strengths of quantitative research**

The strengths of quantitative research lie in its ability to accurately and broadly test a hypothesis through the generation of raw numerical data. It also maintains its validity by sampling large groups, alleviating the factor of fewer participants unduly manipulating the information (data) at random from a chosen sample. The numerical data indicates a hypothesis is supported (true) or not supported (untrue). The two main types of data collection are



experiments and surveys. Surveys may produce information in the form of text that can also be used but the primary goal is to isolate a specific tendency, behaviour or belief. The writing style is impersonal and the researcher is independent of that being researched (Creswell, 1994). An impersonal approach reinforces the impartiality of the researcher in presenting the data. The sampling of larger groups together with the finite nature of the information generates concrete evidence of factors. Creswell (1994) states:

“Through the careful design of data collection, the researcher attempts to eliminate bias and to select a representation sample from the population—all aspects of a positivist methodology. One also establishes “cause and effect” in the positivist methodology.” (p. 116)

### **3.2.3 Limitations of quantitative research**

The advantage of quantitative data collection in enabling the isolation of factors or tendencies through raw data also has its limitations. Some forms of research, especially in relation to human interaction, communication and creative activities do not easily generate numerical data and it may not be possible or applicable to sample a large group. Complex human relations or conditions are not suited to quantitative research as subtleties in language are not able to have input into the research. Other issues relate to the overly simplistic design of instruments that only seek to test a single isolated characteristic. Volunteers completing a survey may be motivated to answer in the affirmative to appease the researcher and the research goal. The design of the instrument may be flawed or engineered to fulfil the aims of the research, creating bias. The research topic may also contain too small a sample number to make the research valid (Creswell, 1994). For more complex human interactive types of studies, another research approach is available.

### **3.2.4 Qualitative methods of inquiry**

Qualitative research is described by Creswell (1994) as:

“an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, conducts the study in a natural setting.”

(p. 1-2)

Unlike quantitative research, the intent of qualitative research is to build theory, not test it. The research topic is examined from many angles in order to understand it and provide meaning. The research is inductive, meaning that conclusions are based on observation, and complexity is explored in a phenomenon or single idea. Data may be collected as words (text) images, (still or moving) and can be analysed using increasing levels of abstraction. There are generally fewer participants at a limited number or even one site. The researcher is more involved in the study often through the collection of data or personal stance and bias is factored into the equation (Creswell, Plano & Clarke 2007 p, 29).

Validity and reliability are largely the responsibility of the researcher and his/her interpretation of the data (Lowe, 2008) and alludes to a relationship between the data and researcher. Qualitative research is more closely engaged in the data and information is more value-laden. “Such words as *understanding*, *discover* and *meaning*, formed the glossary of emerging qualitative terms” (Creswell, 1994 p.6)

The main forms of data collection include interview, focus groups, audio and/or video recording or artistic expression in the form of movement or artistic work, visual or sound. Among the many types of qualitative inquiry, has identified five common types;

- Biography - “The study of an individual and her or his experiences as told to the researcher or found in documents and archival material” (Creswell,1998).
- Phenomenology – Examination of a human experience through engagement over time in order to study a phenomenon (Creswell, 1998).
- Ethnography – The study a culture or social group where the researcher is immersed in a cultural setting in order to understand customs and relationships (Creswell, 1994).
- Case study – Through detailed examination of data such as interviews,

observations and documents a single phenomenon or “case” is examined over time (Creswell, 1998).

- Grounded theory - as developed by Strauss and Glaser (1967) asserts that qualitative researchers build theory and form a hypothesis as the data emerges, i.e. a theory grounded in the data that is collected.

### **3.2.5 Strengths of qualitative research**

Qualitative research, at first discounted by positivists and quantitative researchers, has developed as a “viable” and useful research methodology. Its strength lies in its ability to dissect complex and interconnected research problems with complexity and, as stated by Strauss and Corbin (1998):

“Qualitative methods can be used to obtain the intricate details about phenomena such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods.” (p. 11)

The strength of qualitative research is that the analysis of data (coding) comes first and then a theory (conclusion) is arrived at. Therefore a more realistic and detailed picture of the research problem may potentially be produced with fewer pre-conceptions about the research; that is it doesn't set out to prove or disprove a theory, but discover if one exists at all. Participant and researcher are ‘involved’ in the process, and so complex and detailed information can be assimilated and analysed. The qualitative research paradigm may also be suited to the researcher's personality and finally the research problem simply may be more suited to qualitative methodology. The sum of these characteristics make qualitative research a more malleable form of research which can adapt to a myriad of research conditions and gain in-depth and informed data (Strauss & Corbin, 1998).

### **3.2.6 Weaknesses of qualitative research**

Qualitative research or naturalistic enquiry is a relatively new entry into the long tradition of scientific research and has often been invalidated by those more familiar with positivist modes of enquiry (Lincoln & Guba, 1985). Because analysis of the data is largely interpretive, it can be dismissed as the researcher may have a pre-conception about a phenomenon and looks to

emphasise that in the collection of data or in the interpretation of that data (Strauss & Corbin, 1998). Qualitative research generally deals with small sample groups, or with a single person, often through a process of interviews, and both the interviewer and interviewee interpret data. A small sample group may make the research more susceptible to bias or lessen its rigor. However, grounded theory asserts that theory emerges from the data, however, as stated by Newman and Benz (1998):

“Theory does not emerge independent of the person interpreting the data. Data do not develop theory; people do.” (p.17)

This statement re-emphasises the interpretive nature of qualitative study and highlights the importance of the researcher having an in-depth, first hand knowledge of the fundamentals of the study if prudent decisions relating to interview questions and the interpretations of data are to stand up to scrutiny.

### **3.3 The method of inquiry chosen for this research**

The nature of the research question or problem is an important determinant in the choice of methodology. Creswell (1994) states that qualitative enquiry should be used:

- If the topic needs to be explored
- If presenting a detailed view of the topic
- If studying individuals in a natural setting (not a laboratory)
- If writing in a literary style
- If there is sufficient time and resources
- If emphasizing the researchers role as an active learner
- If the topic has a ready audience

The complex and varied methods employed by improvising musicians suggest the use of quantitative research methods may be problematic. Quantitative research suggests the surveying of large groups of participants, and that the raw data is numerically coded. The intricacy and complexity of practice methods make finding a consistent or testable theory difficult and data cannot be tested over a long period of time and is not always quantifiable in terms of a number or measurement (Punch, 2000).

As this study is an examination of a human activity that requires a consistent effort over time to achieve a result, a qualitative research methodology has been selected as being the most appropriate research approach. Given that research projects are often conducted over a time frame of two to five years, practicing a musical instrument until the protagonist reaches the elite level may take 10-15 years so data that is recalled from memory may not be accurate. Interviews may be the most appropriate way to research early practicing approaches in relation to the whole practice regime of the advanced improviser.

A qualitative approach was chosen to gather information that would not only lead to a specific theoretical process for learning how to improvise at the elite level, but also to demonstrate that a wide variety of techniques and experiences can also be effective. As the study examines the processes undertaken by leading improvisers, it was necessary to research their approach to practice. This information could best be ascertained through the interview process.

### **3.4 The research setting**

#### **3.4.1 Participants**

The participants in this study were chosen for their experience as improvisers in the jazz field and as the leading musicians on their respective instruments in their musical community. As the research deals with the optimal practice methods, it made sense to sample elite improvisers. A mixture of musical instrument type, age and experience level was included. All musicians had also spent time outside the geographical research area of Perth. The sample was as diverse as possible while still being the upper percentile of improvising musicians. In choosing the participants, it was necessary to capture a varied sample group to gather information that transcended instrument, stylistic nuances or leanings, age, and musical education. This was deemed important because a limited choice of participants may have affected the breadth of the data. Six different instruments types were chosen to represent the main instruments in contemporary jazz improvisation: saxophone, brass, piano,

double bass, guitar and drum set. This also ensured that overarching concepts uncovered were not instrument specific but pertained to all common jazz instruments.

It was also important to gather data from musicians who had developed both through a music program at school and at a tertiary level, and those that who had been primarily self-taught or not attended a tertiary music course. This also examined whether improvisation can only be learnt in a structured educational environment or without any formal instruction at all. The importance of age in the study was considered of less concern because the study involved elite improvisers and the ability to improvise at an advanced level takes time. In choosing participants, the research question steered the researcher towards musicians in their thirties or older.

A diversity of participants allowed the data to be more representative as concepts uncovered would be consistent across all of the variables. All of the participants had at some point taught improvisation and therefore had some experience in communicating concepts about practicing jazz improvisation to others, often in a formal teaching environment. Therefore it was likely they had conceptualized what they thought about practice and improvisation, and could articulate their thoughts succinctly. Berkowitz (2010) describes the conceptualization process as an important part of being a good improviser as the information must be learnt and analysed in great depth in order to teach it.

The participants chosen for the study were all colleagues known to the researcher and had all taught at a large tertiary performing arts institution. Their ability as improvisers and their skills as teachers and communicators were also considered. However, in order to ensure confidentiality and anonymity, pseudonyms have been used in the presentation of the data.

### **3.4.2 Interviews**

Interviewing was chosen as the primary data collection method for a number of reasons. The process of learning how to improvise in the jazz style is itself a personal journey and so the individual experiences of participants were an important consideration in gathering information. The process of development

as a musician involving practice is also complex and multi-faceted, and so detailed answers to questions were desirable. The interviewer knew the participants, and so good rapport allowed for a free exchange of information. Each participant was asked exactly the same eleven focus questions read from a sheet in the same order. However, discussion allowed participants to explore aspects beyond the key questions. Limiting the questions meant every interview finished in around 30 minutes, to avoid interviewee fatigue. (Stewart & Cash, 1997)

Interview questions were designed:

- To be open ended and non-directive.
- To invite expansion of ideas or concepts
- Not as yes /no type answerable questions.
- To allow participants to have their own ideas about practice and improvisation.
- To target specific characteristics in relation to practice and improvisation.
- To unpack the research questions.

### **3.4.3 Issues with the interview process**

In terms of qualitative research, the strength and relevance of the data is largely determined by the success of the interview. If ineffective questions, or questions that don't relate to the theme of the research are asked, then the data is of little use. Much of the success of the interview in gaining quality data relies on the design of the questions. These may be directive, meaning that the interview is largely controlled by the interviewer, or non-directive, in which case the interviewee is allowed more freedom to speak and also steer the direction of the interview (Stewart & Cash 1997). When possible, non-directive questions were asked to invite as much detail and individuality in the answers as possible. Familiarity with participants was an issue that could have led to them wanting to either affirm the questions in the study or be guarded about their responses, especially due to the personal nature of the subject matter. Participants were reminded prior to the interview that their contribution was anonymous in an effort to allow greater freedom of

expression. The other issue can be a lack of experience on the part of the researcher in guiding the interviews to extract the best data and most detailed responses. Stewart and Cash (1997) state that a non-directive approach allows for greater flexibility, motivation and deeper answers. It also allows for adaption to each participant, potentially generating more information. However, non-directive questions can also be time consuming, interpretive, generate unwanted or excessive information and adaption to each interviewee may reduce or complicate the replicability of the interview questions.

#### **3.4.4 Environment**

The interviews took place in venues that were chosen for their familiarity, comfort and isolation in terms of background noise so that recordings would be clear. In most cases this meant the participants personal offices at their place of work. The shortest interview took around 20 minutes to complete and the longest was 50 minutes; the remaining interviews were around were around 30 minutes each, as follows:

- Sam - 20:08
- Kenny - 38:30
- Mike - 21:38
- Henry - 25:24
- Hal - 32:58
- Brad - 49:39

Interviews were recorded and a good rapport was maintained throughout the interview process.

#### **3.4.5 Interview questions**

The questions asked in the interviews were based upon themes that emerged in the literature review. In line with a grounded theory approach, the literature review uncovered themes relating to practicing an instrument to improvise, and the themes generated questions designed to allow participants to express their own thoughts on each one. The questions were structured and carefully designed not to lead the participant into merely verifying themes which became apparent in the study but more to flesh out their own experiences



about a topic (Stewart & Cash, 1997). The questions were as follows:

1. Can you start by describing your early musical development and practice habits?
2. How do you use resources such as books, recordings, and a metronome when practicing?
3. How do you organise or schedule your practice time, and when are you the most motivated to practice?
4. When do you feel like you achieve the best results in your instrumental practice?
5. How do you practice when memorizing written music?
6. How do you see the role of practicing technique in performing improvised music?
7. What do you see as the most important elements of practicing improvisation as apposed to practicing written music?
8. Can you describe what mental processes occur when you improvise in performance?
9. Can you describe what mental processes occur when you practice?
10. Are there any other things you do apart from practicing your instrument that help your musicianship?
11. Do you have anything else to add about practicing your instrument that may be of interest?

All of the interviews were conducted over the period of one month between October and November in 2013. Interviews were recorded using a portable digital recording device. The files were then converted into Mp.3 format to allow for secure storage and ease of recovery and access. The files were transcribed by an outside agency and care was taken to ensure that secure means of file transfer was utilized.

#### **3.4.6 Data analysis**

Data was transcribed and coded via a three-stage process. In the first stage, information was organized under 11 main literature review themes that emerged out of the participant responses. Through this process, the first and most fundamental categories were created. Strauss and Corbin (1998)

describe this as open coding:

“ The analytic process through which concepts are identified and their properties and dimensions are discovered in data...Categories are identified and made specific by delineating their parameters in order to create a foundation to build theory.” (p. 121).

The second stage of the process involved identifying sub-categories that emerged within the questions and formed new and more complex streams of information. This process takes place on the conceptual level and is described by Strauss and Corbin (1998) as:

“Axial coding – the process of relating categories to their subcategories, termed axial because coding occurs around the axis of a category, linking categories at the level of properties and dimensions.” (p. 123).

It is largely interpretive as meaning is sort in the data beyond just categorizing it in terms of the words used or in this case under the questions asked. In the third stage of the coding process, smaller emerging categories were identified and organized into sub-categories. Some of these were unrelated to the larger literature derived themes but added depth and complexity to the data. This also involved working back through the data in order to bring the categories and subcategories into an over-arching theme, reflected in the initial research questions. Referred to by Strauss and Corbin (1998) as selective coding; it is:

“The process of integrating and refining the theory. In integration, categories are organized around a central explanatory concept.” (p. 161).

Through this process, the data is interpreted and reflects and re-enforces the key themes evident in the literature review about instrumental practice in the jazz genre.

### **3.4.7 Validity**

Obtaining validity in qualitative research has long been contentious as quantitative validity criteria aren't necessarily transferable to qualitative methodology. Quantitative research validity largely deals with the reliability of the data and instrument while qualitative research, or naturalistic enquiry validity is more reliant on the “interpretation” of data or the human element. A

criterion for validity has been put forward by researchers including Lincoln and Guba (1985), Maxwell (1992) and Newman and Benz (1998). Whittenmore , Chase & Mandle (2001) state that: “Lincoln and Guba’s translated criteria remain the gold standard.” Lincoln and Guba (1985) proposed four criteria for judging qualitative research. These are:

- Credibility – the degree to which participants find data believable and credible (confidence in the accuracy of the findings representation of the data).
- Transferability – the degree to which the results can be transferred into other settings.
- Dependability – the ability to replicate the study, using the same research methods.
- Confirmability – the degree to which others can confirm results.

Although these criteria certainly take steps to ensure the validity of naturalistic enquiry, as stated by Maxwell (1992):

“Validity categories are of much less use in qualitative research than they are (or are assumed to be) in quantitative and experimental research.” (p. 296)

Maxwell (1992) describes five types of validity in qualitative research:

- Descriptive validity – the accuracy of the researcher’s account of what they saw and heard.
- Interpretive validity – the accuracy of the interpretation of data or the meaning associated with it.
- Theoretical validity – the validity of theoretical constructions that are developed during research.
- Generalizability – the extent to which the research pertains to other situations, populations or settings.
- Evaluative – The evaluative framework that is applied to the research.

Although the unique practice situations of the participants are different, some similar information would apply to other improvisers if they were performing at the elite level. Maxwell (1992) also includes evaluative validity as an important component of validity. This type of validity relates to a value judgment about

the meaning given to data and is not as central to qualitative research as descriptive, interpretive and theoretical validity or generalizability. Creswell (1998) describes five main types of qualitative research; biography, phenomenology, grounded theory, ethnography and case study. Of these five traditions, case study best describes the research tradition closest to this study. Newman and Benz (1998) note that validity of case study qualitative research may be enhanced in a number of ways including multiple data collection techniques, information that is checked by experts, a variety of data sources and a scientific method in which a hypothesis is proved or rejected by the collection of data.

Validity in the research has occurred on a number of levels.

1. The data has been collected in a number of ways including interviews, first hand accounts, workshops and published studies.
2. The interviewees were all asked the same questions, allowing for cross checking of data. Newman and Benz (1998).
3. The participants are all high level improvisers.
4. The interviews were semi-structured allowing for both the targeting of objectives of the study and the building of new theories about the topic.
5. Interviews were accurately transcribed and then crosschecked by the interviewer for accuracy of musical terms.
6. The participants were known to the interviewer and so false representation was minimized.
7. The researcher was familiar with the field of instrumental practice and improvisation.

### **3.5 Chapter Summary**

Chapter three has outlined the background of the study, the chosen method of inquiry and the research setting. The main types of research methodologies have been discussed, and the strengths and weaknesses of each documented. Qualitative methodology was chosen for its compatibility to the type of data being collected and analysed. Participants were not only chosen for their knowledge and ability as elite improvisers and diversity was sought amongst participants to give the data a degree of transferability and validity.

Chapter four now presents data from the interviews. The data are coded in relation to the topics generated by the interview questions and additional topics raised beyond the focus questions are presented at the end of the chapter.

## **Chapter Four – Interview Data**

Chapter three introduced the research method for this project and described how data was collected and how it was to be analysed. Chapter four now presents the data coded under each interview question and also identifies themes that emerged during the interview process. It includes relevant quotes from participants to allow the data to speak for itself. Coding of the data will facilitate an informed interpretation of the information provided by the participants.

### **4.1 Early musical development and practice habits**

The researcher asked the following question:

*Can you start by describing your early musical development and practice habits?*

Mike talked about the importance of playing melodies from the beginning:

Well, I was lucky to have [\*] as my first teacher so he kind of got me into playing melodies pretty much straight away.

Further, he talked about playing with confidence and intent:

He was saying, “You’ve got to make sure, you know, every time you play you’ve got to say something, you’ve got to mean it when you play,” and I think that ... I was pretty lucky to have someone say that at such an early age.

Mike then spoke about learning by ear:

[My teacher] used to teach me melodies by ear, which freaked me out to start with, and was always difficult because... my ear wasn’t great, and he really pushed me along. He’d also just throw on recordings and get me to play along with them in lessons and help me kind of pick out notes. It was kind of piece orientated more so, we would have a tune or maybe two tunes we’d work on and improvise on.

He talked about his teacher’s philosophy with regard to scale practice:

... we were doing scale work but he...explained to me why I was learning the scales and how they’d be useful later rather than just saying, “You need to know F Major scale,” he’d say, “You need to know major scales,” so when we’re playing this tune and you get to this

chord, you can use notes out of that to make a melody.

Mike talked about the amount of practice he did:

...from 16 to 20 I was doing lots of practise but I'm not sure it was that effective because I would practise all day long anywhere up to 10 or 12 hours and then go and do a gig.

He addressed its effectiveness with regard to learning how to improvise:

I've just practised all day...surely I should be better after that, but would realise that I wasn't really practising improvising at all. I was practising scales, I was doing patterns, I was learning solos, I was trying to learn tunes, but I wasn't developing my ability to improvise with anything.

And further in relation to practicing improvisation:

I tried to get everything I practised to relate to improvising... if I did a melodic pattern I'd then do it with the understanding... that when I get to a certain section of a tune, I'd have material to draw from. Not a line to throw in but material to draw from if I wanted to develop lines, let it develop my aural ability.

Importantly, he also talked about how his efficiency when practicing:

So yeah, I think early on, I think I did loads of practise that just didn't really mean anything. Developed my technique a lot, I guess, but it certainly didn't help me musically that much. What I was doing in ten hours to 12 hours then I could quite easily do in four now. Easily.

Henry spoke about his early musical experiences:

I guess, like, really early, it was playing along to Dire Straits in the shed- that's pretty early - and then I guess it was sort of like a combination of ... well, in high school ... I was in a percussion stream so practising technical things to do with that, and then I just continued playing along to albums, I guess.

And the frequency of his practice:

Yeah, I think from maybe about 17 or so to about 20 it was kind of every day, yeah.

Hal talked about his early musical experiences:

Yep. When I was in primary school I started trombone in grade six. Actually, I started piano when I was four and my mum knew enough about music having done that as a kid to help teach me ... but I used to sit on my bed and practise and just play the pieces that I was given by

my teacher.

Hal also talked about his inspiration to start playing his instrument.

Originally I did it because ... I think it was just something simple like my cousin was doing it. He was a year older than me and we were at the same school, we were kind of fairly close and, you know, always looked up to him, and also at the time the Head Boy was doing it as well, and that, you know, as a kid the year below you think, that looks pretty cool, they always look pretty cool playing it, so I thought, yeah, I'll take that up.

Sam initially talked about his early musical experiences in terms of the music he was hearing:

My dad was a piano player, so actually I was brought up on a lot of jazz. I can remember Oscar Peterson Trio and Sergio Mendez so actually the stuff I was hearing when I was a kid was actually really sophisticated, but I actually didn't really like it, or I wasn't aware that I liked it.

He also talked about his early experiences as a musician:

So I remember when I first started my early development was just, you know, like most bass players, just learning bass lines, playing in bands, and then I remember the first steps when I started to improvise, I... actually had no idea because I didn't have a teacher, so I remember I got one of those play-alongs, like, I had some two five ones, but I could sort of play stuff,... I could hear stuff over it.

Sam also talked about the role his ear played in his early development:

I think it was like a natural sort of sense of, to a certain extent, sort of hearing melodies through that to a certain extent. ...So what I started having to do was to try and hear things and not necessarily from the bass, more like a melodic ... hear melodies over things.

Kenny spoke at length about his early musical upbringing:

Well, my earliest musical development was on the violin for six years. I had a proper teacher, did the whole classical thing. That happened from eight until about ... I was 14, and then guitar was the popular instrument. I loved that sound of the guitar. That's what got me into guitar and I started treating the violin like a ukulele, top four strings of a ukulele, playing chord shapes on the violin, making up some of these shapes myself because I didn't have any books or anything.

He also talked about learning by ear and imitating other artists:

...initially it was just listening to pop records and imitating ... trying to



work out how I could get to sound like [\*\*] on his Stratocaster when I had this terrible cheap old guitar, acoustic, you know, didn't sound like him, but that's how I learnt.

Kenny talked further about playing by ear:

I could read music from the violin reasonably well but I never thought about reading on the guitar, or even got any books, so it was all ... the first things I ever learnt on the guitar I just taught myself some shapes, made them up, made up some chord shapes.

Brad talked about his first experiences learning a musical instrument:

I was banging on the piano when I was really little apparently, listening to my mum play piano, making her play the same song over and over and over again. I got given piano lessons from a fairly early age, probably around year two, I think it was.

And his first experiences learning an instrument and improvising:

Yep. Sort of always, I suppose it's fair to say in inverted commas, improvising... it seemed to be a pretty natural part of that early music-making as well, I think. Always kind of making songs and I guess composing and, you know, extrapolating things.

Brad talked about his musical development during high school:

And then kind of heard Chick Corea I guess and all those guys so... kind of thought that sounded harder on piano so wanted to get more of those techniques happening on the piano and then went tertiary.

Brad talked about his early practice habits:

Yeah, practising, well, through high school, the first thing I do I just come home from school and go straight to the guitar and straight to the piano and just play music all the time, when I was really into it. Probably in the early years, you know, kind of had a little bit of that, you know, struggle with practise, but always loved improvising. Got through that and then was kind of really into it, so yeah, continued with all that. Yeah, it's fair to say, playing music every day, practising.

In summary, the majority of participants stated that they had started practicing regularly some time during high school. Another theme that emerges is the concept of learning material by ear, either by playing along to records in imitation of artists or songs, or improvising in some way. All of the participants stated they were practicing consistently and with some type of agenda or at least an intention to improve, although not always with a clear focus on what

they were doing.

#### **4.2. Use of resources when practicing.**

The researcher asked the following question:

*How do you use resources such as books, recordings, metronome etc. when practicing?*

Mike talked about his use of resources when practicing:

I use the Bergonzi book mainly for the play-along because... there's some modal things that I can use ... and the rhythm section sounds pretty good on it so I can actually use that ... to help me while I'm practising.

He also mentioned using his own play-along tracks and a metronome:

I make tracks sometimes in Sibelius if it's a really tough modal thing or tricky harmonic thing, I might set up some kind of play-along system for it. So I use that. I use a metronome quite a lot in different ways.

He also talked about using recordings:

I used to transcribe a lot; now I tend to just put a recording on. If there's something I like about it, I put it on and try and play in that general style rather than actually working everything out.

Henry talked at length about the role of recordings and technology when practicing:

Books I don't really use that much now ... I'd say most of the things I practise now is repertoire that I'm trying to work out. I might have some metric things or I might have some independence things that I'm trying to work on and try to ... trying to play them enough that they kind of evolve into some kind of malleable language ... working on them enough that you can stretch them out or.

He also talked about how he uses recordings:

With recordings I might hear something that I really like and I'd like to ... incorporate into my language. I have a playlist of things, maybe about 30 or so tracks or snippets of things that I listen to and ... get inspired by .... or might even write some of it down, I guess that's one way of dealing with recordings.

He also spoke of his preference for recordings over a metronome:

If I'm practising some jazz kind of scenario, I've got a list of tracks from the 50s to the 60s ... really swinging, you know, Kenny Clarke, Philly Joe, Louis Hayes, that I practise with. Rather than just the blip, blip of a metronome.

Hal spoke quite specifically about books he has used:

I use a book called *The Trombone Practice Book* by a guy by the name of Paul Tanner, and it's basically got exercises on five key areas of technical work, so there are things like tone, flexibility, tonguing, articulation and ... Intonation. So ... I use books like that. There's also the *Arban's Method for Trombone* which is also based on the Arban's method of trumpet which has got a lot of really technical exercises.

He also spoke about using a metronome:

Metronome, I use ... especially when I'm working out rhythmic ideas. I try and imagine a pulse underneath it for improv stuff, otherwise I will work with a metronome on my technical exercises to keep me honest, and to try and push the boundaries a little bit, so I like to get it clean at a lower tempo before moving up to the next tempo because I think that's important in establishing getting everything out perfectly. I believe that you should be doing things a little bit slower so that you understand how they sound and how they feel before you go to the next level.

And his use of recordings:

I use recordings a lot for inspiration. I will practise transcriptions and I will check them against recordings as well because I've got a file of my own old transcriptions. I'll play them through first so I remember them ... and then I play along with the recording, and I find especially some of the more inspiration ones that it's kind of a good motivating tool as well. So recordings are good for that.

Hal also talked about how play-along recordings aid his practice:

Play-alongs are good for learning repertoire. It's a different type of learning, I think. I use them ... to learn more repertoire and also re-remember melodies and tunes that I've forgotten. It's a bit of revision as well as kind of learning some new stuff and just trying to keep my head above water sometimes.

Sam talked about using recordings:

I don't use backing tracks that much. What I've been using a lot at the moment is transcriptions in a slowdown thing. It's not necessarily to hear the phrases, just to build phrases up, like fast passages. Sometimes it's even for time feel, just to build up to develop sound.

And also books:

One of the earliest method books was Rufus Reid's *The Evolving Bassist*. Problem was I couldn't read that well, but I used to go out and buy all the books. So I got a library of books that I couldn't read.

Kenny talked about using play-along recordings:

So as far as did I practise improvisation, yes, I tried to set up a real-world kind of situation. When play-alongs came along it was great because I'd set it up and just play along with the tracks, and that's what I still do if I practise, I put on play-alongs and just play.

Brad talked about the use of books:

So I guess being a piano player there's, voicings and things like that. Often they came out of a book or there's a voicing kind of structure or concepts, like, voicing fourths, voicing stack thirds or something, okay, then that's a concept that came from a book. Then I guess there's ... also kind of line things and conceptual things, Coltrane changes, that kind of stuff. That's all, I guess, kind of been documented in books as well, so I guess.

In summary, most participants spoke about using at least one textbook, or method book, that focused on techniques that were applicable to improvisation. However, the use of play-along recordings as a way of practicing improvisation and simulating a real world situation featured most prominently as a practice strategy for learning repertoire. Transcribing was also mentioned as an effective way to analyse style and assimilate language.

#### **4.3 Organization of practice time, and motivation to practice.**

The researcher asked the following question:

*How do you organise or schedule your practice time, and when are you the most motivated to practice?*

Henry spoke about his motivation to practice:

It's kind of fallen off a little lately. It used to be late at night. That seems to be when I'm the most motivated to do it. Sometimes I might try to induce my motivation, I might watch a certain drum video or something, for five minutes and it will get me into a mode where I have something to aspire to ... The morning is really good for the fundamentals but later at night is when I start to think of things that are slightly creative and practise those. Sometimes to the detriment of the

other thing though ... you can just go on a tangent for a long time.

Hal talked about his practice habits with regard to motivation:

Most motivated is when I've got something coming up, a performance, gig, something that I feel is going to be exposing, like, expose my lack of ability to play well. That's when I'm most motivated. I think I work best under pressure.

Sam then spoke about his practice schedule:

When I was younger it used to be at night. I was like a real late-nighter. I used to practise until six in the morning when I was 16, 17. Now sometimes it almost has to be early morning or during the day. That's a better time for me now.

Sam talked about his practice habits:

There was periods like when I'd say it was ... almost like a daily thing, and then there would be like a break and, you know, you go through periods of hot and cold.

Brad talked about his motivation to practice:

I feel reasonably honest to say I'm genuinely motivated most of the time if I can get a reasonable sort of chunk of time. But I'm definitely more motivated when there's not as much on, which leads to it being sporadic, and I'm definitely motivated if there's a deadline or a project-based thing which I need to achieve, I just have to get it down, I have to do it. I'm really motivated after, having a great musical experience or seeing great music.

In summary, the participants generally state they are more motivated if there is an external force, either having to learn music or having been inspired by a musical experience. Most allude to the difficulty of maintaining a high level of motivation towards practice, and a regular practice schedule.

#### **4.4. Efficient Practice**

The researcher asked the following question:

*When do you feel like you achieve the best results in your instrumental practice?*

Mike talked at length about when he is most productive:

Yes, slow, slow practise for me is the way to go, for sure. I mean, I say

this to students, you just can't cram music. My practise even now is in ten or 15-minute blocks of things and I'll do them for ... I mean, some things I might do for two months, sometimes for a year; there's some things I've been practising for, you know, nearly 20 years, and I just still do them every day, 15 minutes or so every day, in a different way and develop them.

Hal talked about when he feels the most productive about practice:

I'm most productive in the mornings, always have been. When I went to high school it was like 6:30, seven in the morning, every day I used to practise 40 minutes in the morning and then sometimes at lunchtime or even sneak off from class sometimes and go and practice.

He mentioned the competitive aspect of learning an instrument in a musical community.

I used to love practising a lot, because there's a bit of a competitive environment too, we had a couple of good trombone players and I was again trying to get to that level.

He also spoke about the problem of getting distracted whilst practicing:

I always find at work and at home, mainly at work, that I get distracted easily. I start practising and I do some long notes and then while I'm just kind of, like, going through the motions of the maintenance side of practise, I'll remember that there's something that I've got to do ... I've got to get a bit of a handle on that sometimes.

Sam spoke about the role of the teacher in achieving best results:

... one of the greatest things is when he tells me I'm getting results, like get that feedback. Sometimes I see it but to get that sort of feedback ... it's like really having another set of eyes on what you're doing and someone you really trust makes a big difference, but sometimes it's all very subjective and you don't really know ... so that's made a big difference.

Kenny talked about his motivation to practice in relation to results relating to a specific experience.

I did have an everyday practise habit for two months, but that wasn't on jazz. That was when I was asked to play a classical guitar concerto as soloist. I had to practise two months every day, classical guitar, which I wasn't a classical guitarist, mind, you, I didn't have the technique or anything. I practised, I managed about an hour, an hour-and-a-half at most a day. Yeah, but my practise wasn't routine or everyday or formal because I never had lessons. I never had a guitar lesson in my

life that somebody told me, "This is what you should do." So as a result, I didn't have anything to prepare for next week or even know what to prepare.

Brad talked about the results of effective practice:

When there's a lot of it together, yeah, and ... it's feeling very familiar and it's not cold, it's not walking into the club, you know, ten minutes before you've got to play and the hands are cold and it's been cold outside and you've got to play 'Giant Steps' really quickly.

In summary, effective practice was highly individual and included time of day, length of practice, external motivation and the need for familiarity. It was difficult to identify a set formula for achieving the best results.

#### **4.5 Memorising written music**

The researcher asked the following question:

*How do you practice when memorizing written music?*

Mike talked about his approach to memorizing written music:

I think it's about ear, it's just I've got to get my ear to the point where I can hear it and then I'm fine. I might ... well, if it's a melodic idea then I just practise, just basically practise playing that melody but away from the page and really hear my way through it. But if it's changes. I'll improvise over it really simply just outlining the changes. Still improvising but mainly using just the core tones. Play it on piano a lot so my ear can hear it.

Hal described his approach to learning written music:

Rote learning, over and over. I practise it in sections, so I'll do a phrase at a time, a musical phrase at a time. If it's music that has an accompaniment, so if it's got a harmonic requirement to it, like a jazz tune or standard, then I'll try and make sure that the harmonic foundation's a part of it.

I just look for patterns in the music which remind me of something I've already heard, for example rhythm changes, look at the form AABA, so you learn the A section. Once you've got the A section down you've just got to learn the bridge, then the B section as a separate entity, then the A comes back again. You've only really, really memorised 16 bars in the standard, if it's that kind of form. But for the harder tunes it's just a matter of doing it over and over, I think.

Sam talked about committing music to memory by learning aurally:

Usually it's just doing it sort of by rote, not looking at the music and getting it in my ear and hearing it, hearing it on lines. I was working on that recently, some of those bass lines I was playing in that show, it was sort of interesting ... I needed the music for it, even though I'd played it night after night after night, and then just recently, because I'm going to play the show, I thought, I think I might just learn it. So all I did was play along with the tunes and not look at the music. If you'd taken the music away from me I would have been in trouble. But now there's tunes I could just play and you could take it away. And the only difference is that I just went through the process of playing it and hearing it and yeah, it's just like you ... you just put it in the compartment in the different way than if you're sight reading, or reading it. It was bizarre, really strange.

Kenny talked about the role of muscle memory in learning music, especially in a classical context:

It's not believable if you're going off the music, so you have to do it from memory. So I did it from memory, yeah, but by the time ... The thing is, with classical, by the time you're ready to perform it in an orchestra, you know it backwards. You don't need the music anymore. You've practised it so much that it's no problem to do it by memory, apart from forgetting it. [Laughs] But I've practised it that much you tend not to forget it, you're kind of on automatic pilot, it just plays itself, the fingers just go there.

Kenny spoke about repetition as a key component of memorizing written music:

So it was repetition. I just did the old slow it down and repeat the passages over and over.

One thing I remember doing towards the end of the two months as the gig was coming up was not going there to practise but going there in that little room to perform it. Because if you're practising it, you're stopping to fix things and you're never finding out ... you're never finding out whether you can play it or not. There's the notes and everybody knows this piece so well, you know. So the main thing there was experience, you know, so I did approach it totally different to practising for jazz.

Brad talked about memorizing written music:

I think I definitely try and hear and visualize a lot away from the instrument, or I tend to just sort of gravitate towards that subconsciously.

... I'm sure a lot of it gets processed when there's nothing else to do, and I'm asleep or getting to sleep or whatever, I'm sure a lot of it must get sorted out there because, you know, you go back to it the next day



or something and it's better or, you know, more concrete. And I think that's the point, I think the memorisation thing probably works for me best in regular sittings again. Try and learn a bunch, then you come back the next day, make sure it's okay, progress, so that it's just madly working through but regular, not ... I can't sort of cram it in one day or anything like that. I try and let my internal hearing remind me as well.

In summary, all participants described repetition as their main physical strategy when learning new material. However, all described the importance of listening to themselves when practicing, hearing patterns and visualizing the music. Central to the process was connecting the ear to the instrument as much as possible, and not just building automatic muscle memory.

#### **4.6. The role of technique in improvisation:**

The researcher asked the following question:

*How do you see the role of practicing technique in performing improvised music?*

Mike talked about his thoughts on the relationship between music and technique:

I believe that the music should lead the technique, rather than, ... just practicing ... out of context, out of a book or doing a pattern or something like that where, you know, that technical practice sometimes it just gives you one way of doing something. Whereas if you practice improvising with the same technique that maybe is causing you some trouble then you're coming up with musical ideas that are more in context with what you're going to do. With how you're going to actually use it.

But I certainly don't spend a lot of time just practicing technique for technique's sake, because I'd prefer to have a musical relationship with whatever it is I play that just a purely technical thing.

Henry talked about the importance of technique as a foundation for improvising:

I think it's really important. I lament the fact that I didn't do more of it, because I think as your improvising advances upon you, you actually have a facility to do the things that you're thinking of now is really important, I think.

Hal talked about how technique underpins his ability to improvise:

Massive, probably the biggest hurdle that musicians face is their inability to transfer what they want to play onto their instrument. I personally think it's the most important aspect of practise. And more so than the creative practise, because the creative practise, I mean, it's a different type, different side of the brain, you know, whether or not ... I know research they say you've got the creative side and the technical side, and I think that's very true because ... but you can't have one without the other.

Unlike Mike, Sam talked about differentiations practicing technique as a technical exercise as the key to improvising:

I try to keep technique separate, in a way, ... classical etudes or whatever, that's where I'm breaking things down, looking at technical things like form, intonation and hand position and shifting all these things within an etude. I then would get a transcription, and I might break that down ... and then it gets to a point where I want to stop thinking about technique and all that stuff and just trust you've done all the work and just ... sort of let go otherwise there's this whole other area, you know, of expression that you'll never get to. I work on trying to keep the technique separate and then if it's more about improvising and playing, it's about being in the moment and trusting what you've done has prepared you for that, and then if it doesn't work just letting that go and not being distracted by it.

Brad spoke about how technique affects his improvisation:

I find whenever I do it I always ... it always helps that feeling of being free in improvisations. That can be as simple from warming up more effectively to being able to do something new or faster or something.

All of the participants spoke about the important role that technique plays in being a fluent improviser. They also indicated that the way they practiced technique had an influence on the way they were able to use it in the context of performance. Where as Mike saw technique as synonymous with the music, Hal and Sam extrapolated it out as physical technical exercises that form the basis for freedom when improvising.

#### **4.7 Practicing improvisation as apposed to written music.**

The researcher asked the following question:

*What do you see as the most important elements of practicing improvisation as apposed to practicing written music?*

Mike spoke about the importance of spontaneity in his approach to practicing

improvising.

Most important, actually improvising when you do it ... not just practicing things that possibly work when you're improvising but actually practicing improvising. I guess that's the main thing, making sure that you're being spontaneous with the material, you're choosing topics that force you to be spontaneous.

Henry talked about understanding the musical parameters when practising improvisation:

Practising improvising for a drummer is great because you learn how to hear what you're doing counter to a form, so you work out how to stretch parameters, but still have an idea of what the form is. It's pretty important in our role, within the music.

Like Mike, Hal talked at length about the importance of spontaneity when practicing improvisation:

One of the things about improvisation is you need to be able to explore new avenues, you need to be inspired to create and that's the hardest bit ... improvisation is really a spontaneous composition so it's about trying to recreate your previous experiences.

Hal then spoke about the role of transcription:

It's important to transcribe and copy what other people have done so that you can understand the language, obviously. When you're doing a transcription, they're just dots on a page, they're nothing ... they don't reflect at all what's really happening in the music so it's really important to listen to other musicians, and transcribe, copy, imitate before you can go on and do your own thing.

Sam talked about greater aural awareness when practicing improvisation as apposed to the written note:

I think the most important thing with improvisation in practise, the thing I always like to think of is from the ear to the hand... to really practise playing what you hear, and not playing from the hand, you know. Yeah, I mean, written music is all about nuance and interpretation and playing a part well, you know, great sound, time, and just being really musical about what's on the page, and then also putting certain elements of what you can bring to that, but when you're improvising ... it's like you've got to hear melodies and you've got to hear things, and then put it all together like you were composing something, if that makes sense.

Brad talked about the difference between practicing improvisation and written

music:

I guess, [with written music] all the information's on the page and the other one, the information's kind of off the page really, so on the page I'd be looking to get as much music out of it as possible, I guess, so learning all the notes really ... the first day just getting all the coordination and the mechanics down, learning the lines, if there was independent lines or whatever, like, trying to bring out the important ones, putting things slowly together, getting a sense of what the style is, are there any stylistic concerns or things that I need to know about.

And then how do I want to phrase, how do I want something to be shaped or is there enough information on the page, is there information about dynamics or phrase marks or things like that or ... Yeah, and I'd be looking to try and inject some personality into it, or make some of my own musical decisions about it.

Yeah, and then kind of enjoying the whatever it is, like, I'm always trying to absorb and take out concepts as well that I can use at improvising. Pretty different, but at the end I think, often it can be sort of a similar musicality, maybe.

In summary, the key theme that emerged from the difference between practicing written music and improvising was that improvisation dealt predominantly with the ear to instrument connection and the need to be spontaneous and creative. For the participants, reading written music was described as a more predetermined activity.

#### **4.8 Mental processes of improvisation.**

The researcher asked the following question:

*Can you describe what mental processes occur when you improvise in performance?*

Mike talked about how his mental state can affect his ability to improvise.

Well, I know what I am thinking, and I know what I'd want to be thinking. I know what happens a lot of the time but I realise where I want my mind to be when I'm playing. So I think a majority of the time it's a combination of thinking about what the changes or in the form and, you know, the nuts and bolts of the tune, but then also thinking about developing an idea, thinking about keeping my ear connected to the music so that I'm not just in my head doing whatever it is I've been practising or thinking about.

Mike spoke particularly about trusting his ear in the mental process:

Where I want it to be is just not even in the music, my head not even there, and just hearing my way through the whole time. I find if I have a really crappy gig and I think back about why it was crappy, it's generally because my ear wasn't connected and I was trying to think my way through, you know, what's that chord coming up here rather than just allowing my ear, I mean, I've played all these things so many times, my ear knows what it is but sometimes if I don't trust that, my brain kicks in and goes, 'oh well, it's probably this so why don't you do this over it because that'll work,' and then the piano player's off doing something else so you're lost, you're not in the moment anymore and you're both playing different things. So ultimately in performance, the mind shouldn't be thinking about anything apart from hearing the music that you want to be playing. But getting to that point is tough. And you've got to practise that, too, in the practice room. You can't just expect [it to happen].

Henry talked about the importance of improvising with others to develop empathy:

Practising improvising with other people is really super important because when you're playing by yourself, you dictate everything, you dictate the trajectory or the direction of everything, so you need to go and practise, facilitating change and empathy but then ... in playing things that correspond or complement what's going on.

Hal talked about the role of confidence when improvising:

So much of it is about confidence and the display of confidence, whether you're confident or not. Jazz is all about the perception of confidence, and you have to mean everything you do and everything you play, and play it with conviction. And whether it's loud or soft, because otherwise, that hesitating thing, you get found out straight away. When I say 'found out' it's like you can see it in other people straight away.

Kenny talked about the importance of focused listening as a mental process when improvising:

When I'm actually soloing, I'm listening more than thinking, I think. I'm listening to myself and I'm listening to everybody else. I'm trying to listen to the drums and bass and I think because you've always got to be trying to lock in, you can't just say, "Oh, there's the tempo, I'm on it now, I'm in the pocket," or whatever. It's like riding a bike, if you stop balancing it you fall off, so I think you've always got to be kind of one ear in the moment of where the rhythm section area and trying to play with the rhythm section, all the time. It doesn't just happen.

He also spoke about being focused on the present when improvising.

And then the other thing I'm listening to is what I've just played, what I've just played, that's going to generate what I'm going to play. And I think this is what true improvisation consists of: working with something you've just that moment played and making something out of it that hopefully you haven't done exactly before.

Now that's an ideal. Of course we all have licks and things we play and patterns we fall into, I suppose, especially at faster tempos, but as I continually tell my students, the improvisation content goes up when the tempo goes down.

... what I'm thinking it's basically what I've just played. Not so much scales, what scale is this, a little bit what's the chord here, yeah, and not so much scales because I didn't learn scales formally until many, many years after I'd been playing.

Brad talked about how conscious thought can impede his ability to improvise with freedom:

I always, always improvise better the less I think, and I'm always constantly dogged by bombarding thoughts. I'm learning to get better at it but I kind of feel like in many ways I'm just starting a journey, like, it just ... the improvisations that I do that are any good are always about me feeling okay about myself, they're always about if I'm kind of feeling relaxed and if I'm feeling like I've got something to contribute here, if I'm feeling like I have self-worth then I'll play as best I can or whatever.

If I'm having self-doubt issues about, you know, music-making or technique issues or if I'm doubting myself or, you know, not considering myself worthy to be playing or, you know, the job I have or whatever then generally it goes downhill very, very quickly. I'm happy I've kind of recognised that now but ... Yeah, so the less thoughts I have the better, and I recognise it when I see it, when I feel it, when there's free-flowing musical ... when I manage to get in that zone I'm always amazed at, you know, some of the things you can do. And that's what actually keeps me coming back all the time as well, is that feeling is ... going for that feeling of freedom. I'm getting there, I reckon I'll get there the more I practise. I should practise more of that.

Brad then added:

I really want to practise more meditation as well to learn those skills of switching the mind off and not analysing and not doubting and, you know, just going for it. I find that hard to do sometimes. Or I, you know, might not appear that what but in my heart of hearts I do.

Most of the participants iterated how important their mental process was to fluent improvisation. Hal and Brad both talked about confidence and self

worth and how that affected their ability to improvise well. Mike, Kenny and Brad all suggested that the less conscious thought they had, the more they felt they could perform with flow and freedom, and the more satisfied they were with their improvisations.

#### **4.9 Mental Processes during Practice**

The researcher asked the following question:

*Can you describe what mental processes occur when you practice?*

Mike talked about the importance of the ear to instrument connection in his approach to practice:

And so the things I do now, even at the beginning of the day just to try and get my ear connected, I'll play one note and then I won't play the next note until I really hear where I want to go, and then I let the notes just kind of go where they want to go and hear my way ... I find that helps me connect.

And then also just playing a tune and just try and let my ear go where it wants to go and try and be creative with it.

Henry talked about the music as his mental focus when practicing:

You try and think about accuracy, and about dynamics, hopefully, like, if you're practising something over and over, maybe like, a hands-to-feet kind of thing, you try to play maybe crescendos or decrescendos through it so that you're not just one level. I guess I try to think about, like, having whatever idea I'm practising down slowly before it progresses, so really understanding maybe the space between notes before ... like, just not trying ... just trying to not ... just rush through everything.

Kenny suggested that his formative mental approach to practice was less cognitive and more intuitive:

These are all techniques that you can practise for improvisation but I didn't know about them, so I practised improvisation, in other words, I put on a record and played along with it, I just improvised with it.

Brad talked about mentally challenging himself when practicing:

Generally kind of like, feeling sort of patient and willing to move forward and try and get new things happening. Sometimes I think, oh...been doing this for a while, not sure I'm any better at it [laughs] move on or is this all worth it. Try and hear what I'm doing, try to be conscious of

technique.

He also spoke of being conscious of the physical aspects of playing in terms of physique and muscle memory.

... or trying to get a bit of an awareness of what it's doing physically. Looking for new ways, or looking for ways to be more economical about movement. Yeah, trying, like, if something ... if I can't do something like trying to slow it down or, you know, those kind of basic ideas. How far can I push this thing or whatever it is I'm working ... like, what if I try and do it this way or that way

In any ways, sometimes, like, the pattern thing can almost feel a little bit like the note learning thing to begin with, ... I almost try and not listen, which is crazy, because it's actually just a physical [thing]. It's almost like I have to shut my ear off because I've got that musical disposition to improvise or characterise or group structures and organise things that I'm hearing so when I want to sight read I kind of almost have to turn all that off otherwise the brain isn't kind of thinking about it in the right way. You know, you can sort of get a zone sometimes when you do sight reading as well, and I find that works better when I try and shut off the other thought processes.

In summary, the participants discussed the importance of consciously listening to what they were practicing and being aware of both musical elements and physical elements of the instrument. Some participants talked about practicing consciously and deliberately. Mike and Kenny both spoke specifically about not thinking consciously about the mechanics of improvisation but instead using their ear to guide them ear when practicing improvisation.

#### **4.10 Practicing musicianship**

The researcher asked the following question:

*Are there any other things you do apart from practicing your instrument that help your musicianship?*

Mike talked about the value listening to music, as well as other artistic pursuits:

Listening to music, without a doubt. Doing things that aren't music, which took me a long time to realise it could actually help me play music. I also like other artistic things, I like visual arts and, just anything that kind of inspires creative thought.



Henry talked about both musical and non-musical activities that help his musicianship:

I think starting to do a little home studio thing helps out, you know, because you listen to yourself and you listen to what works. Everything helps really, you know, going for a walk, listening to the birds, it all kind of helps.

Hal expressed how the academic environment helps his musicianship, especially working with students:

Yeah, listening for sure. Teaching with my colleagues. Sometimes, you know, a student will do a great tutorial with somebody I haven't heard of, which is always the best, and then you go, "Okay, I'm going to check them out." Listening to students helps as well because it's rewarding but also, you know, it does make you realise perhaps some of the deficiencies that are in yourself or in them that need to be connected...I think those things all help contribute to a being a better musician.

Sam talked about the value of researching other people's views on music in terms of building his musicianship:

Yeah, reading, like, I read a lot, a lot of articles, interviews, anything, like, other people's thoughts on music and, you know ... I'm mad with that, often there in the library or just reading, reading articles by people about music or talking about music with people, yeah. That helps.

Kenny talked about the value of singing, arranging and also recording in developing his musicianship:

Oh yeah. I've done quite a bit of singing over the years... I think being a singer sort of helps me to accompany singers, especially when we get into a rubato sort of situation. I've also done some arranging for string groups and ... This improves your musicianship and not necessarily your ability on the guitar but I like to think that over the years I've become more of a musician than a guitar player. I think recording, recording yourself, you know, we've all done a lot of recording. I think recording really shows us where you're at.

Like Mike, Brad also talked about the value of other activities in building his musicianship:

Yeah, definitely listening, trying to gain an awareness of, you know, new things or where the music's going or, you know, I find even just sort of engaging with the broader arts scene, painting, sculpture, being part of a local festival or something or, you know, they can all sort of

contribute towards your creative ideas and your thoughts about concepts or metaphors.

I guess doing gigs and ... playing with different people, I find often brings out different aspects of my own playing.

He also spoke about the intellectual stimulation of composing:

Yeah, I guess, the composing thing, ... new experiences, new stimulations that can interrupt....new things to start you thinking about ... ideas about, broader metaphors, I guess. The human condition now, and, you know, that can often propel you musically in new ways and stuff like that. Definitely with my composing it does, like, that sort of – for want of a better word – that kind of intellectual stimuli to propel that.

In summary, the participants spoke about the importance of a wide range of activities, including listening to music, researching, singing and also composing in building their musicianship. It is interesting that three of the four topics deal with the ear, or listening to music. Teaching was also mentioned as having a positive impact on musicianship along with other arts related activities such as visual arts.

#### **4.11 Other topics about practicing**

The researcher asked the following question:

*Do you have anything else to add about practicing your instrument that may be of interest.*

Mike talked about the specific practice technique of working in small chunks of time:

The big one for me I think with practising is the small segments often rather than a big chunk of time on one thing for a few days. I'd much prefer to just keep my development across all areas so; rhythmic harmonic, melodic and phrasing areas are all growing at the same time. So I'm really aware of trying to keep everything moving at the same time.

He also spoke of his unique approach to creativity involving saturation:

Actually, there's one thing I do practise that's pretty different, I think, and I do this with some of my students and it drives them insane where we play a tune at one tempo for an hour and I've been doing that quite a bit because for the first ten minutes you play all this stuff, and then you just start repeating yourself, and then you get frustrated, and then you just do anything you can to get to play something different. And

then I find that I start getting more creative. After about the ten minute, 15-minute mark, once I'm *really* sick of everything I'm playing, I *really* have to be conscious about playing different things. I find doing that in the one-piece thing for an hour opens up a lot of doors creatively. That's a good one, I think.

Mike then mentioned the value of playing other instruments in relation to his own instrument:

Other than that, I think playing other instruments a bit, you know, like for me playing a little bit of drums, it just gets me hearing phrases in a different way or playing piano is giving me a better understanding of the harmony. Especially coming from a single line.

Henry talked about the role of time in building skills:

Music is really cumulative ... there's no fast remedies for anything, like, you might have kind of growing spurts, I guess we all do when we start but ... you might be in a band where you play a lot of shuffles and for a month, you know, twice a week you've been playing shuffles, and then by the end of the month, you're quite good at playing shuffles just from actually clocking the hours and doing it. And I think, practise is kind of the same...a lot of those ideas I was talking about before that I might have written on my computer and started to practice... it's a year and a half before they're coming out with anything tangible.

Hal talked about the centrality of sound in being a musician:

Yeah, I think for me ... it's important to be a well-rounded musician in any field, so that's why hence my references before to classical repertoire and technique and stuff like that. But I think, to me, the main focus on any instrument really comes down to sound. I think it's all about sound. That's it. [Laughs] That's what makes you unique and that's what gives you an identifiable presence, you know.

Sam talked about the uniqueness of improvisation and engaging with sound:

One thing is that it's just that improvisation has become such a ... nobody had really had a method. There was a method but it wasn't anything that was written out or, you know, it's now become this real academic thing, a place like this or anywhere in the world, courses ... everybody's putting out books. When you actually get back to the real source of it, it was just that whole aural thing, it was really listening, learning it, and then in a way in your own manner working out how someone had arrived at that.

He lamented the 'intellectualisation' of jazz improvisation:

But sometimes I think there's like this ... it's almost like it's missing a link, we've stepped too far away from that and...it's like an academic

process that you learn all these things and it just magically all appears. So it's just getting back to that real basic thing that actually not to over-intellectualise it too much. Sort of get back to making it more organic.

Kenny talked at length about the ear to instrument connection when practicing improvisation, and the value of conceptualizing solos on other instruments:

If you're talking about practising to play jazz, I think you should work on your ears and I think you should try to get the connection between your ears and the instrument happening ... singing along with what you're playing, singing the exact pitches that you're playing, not just a rough kind of rhythmic thing that's sort of there pitch wise but the exact pitches that you're playing.

So practise so that you can play what you're hearing so that... if you want to play a melody, you don't just have one thing written for that melody so that if you forget that thing and you can't play that tune anymore.

I maintain, see, that the music, the improvisation is in your brain or in your head, it shouldn't be on the instrument. It's in your head, it's a product of what you've listened to and the experience. So if it's in your head then you should be able to do it on any instrument. So I used to get students in improv to play their solos on the piano.

So if you've got a rhythmic vocabulary and you can make it sit with the rhythm section, all you have to worry about is the pitches, and if your ear's quick enough, you can do anything. So that to me was trying to get away from what they can do on the instrument and actually get it to what they're actually hearing. So playing solos on the keyboard with one finger, you can actually play a kind of decent sort of solo.

So my thing would be to try to get the connection between your ear and what you're doing on the instrument, even if it means leaving your instrument and practising on something else. Won't help your chops but it'll help your creativity, if you like, or ...

You can work out what you're actually hearing ...if it's the instrument that's doing it, rather than what's inside your head.

Brad talked about the importance of technical development on the piano, and the value of looking beyond jazz to build greater technical understanding:

Definitely I think with the piano I've found that there's ... with jazz piano anyway there's always something, there's always a new technical thing you can always be working into your playing, like, I'm often encouraging students to look at a classical piece or look at this particular technique and try and absorb that.

In summary, most of the participants spoke about the importance of the ear to

instrument connection in developing as an improviser. They also described a range of ideas, including practice techniques and approaches based around the central concept of sound as an organic entity.

#### **4.12 Other topics that emerged from the data**

In addition to the researcher themes identified in the chapter, a number of other participation-generated themes emerged.

##### **4.12.1 Visualization**

Brad talked about the value of visualization in general, especially for teaching:

I think visualisation is definitely, good, I think, when you can start seeing in your head things like [playing piano] basic things like that, you start seeing all that well or ... voicing melodies, I haven't spoken about that but I'm always getting people to practise how to do that, voice between the two hands.

Kenny also talked about the value of visualization for him when improvising:

Yeah, if you had a big six-string chord you could see the six notes, but you can also see the notes. I must have learnt some basic major scales and a minor scale early on; I could see that between those scale notes there was another note you could use as an approach, a passing tone. So it's basically seeing the chord shape, and one of the players I think still do this, and Joe Pass is one that sort of does this, you can visualise the chord shape and I can see the chord tones, I can see the extent. So the chord shape, being a guitarist, helped me whereas it wouldn't if I was a [tenor?] player, because I think trombonists and people like trombonists particularly, learn to improvise in a totally different way to a guitar player.

He noted that this might be specific to his instrument.

The two participants that talked about visualization were the pianist and guitarist. It would appear that these instruments are more likely to lend themselves to learning patterns on the instruments in a visual way as every note on the instrument has a specific fret or key which can be seen. Instruments such as the saxophone or trombone may be less visual as and more kinaesthetic as every note on the instrument cannot be seen. The hands are required to perform complex patterns to create melodic sequences. The

horn player is thus more likely to be reliant on mechanical memory and aural skills.

#### **4.12.2 Listening to and transcribing from recordings**

Brad talked about rediscovering the value of transcribing and how it has benefitted his practice:

The jazz piano book ... has got a bunch of things that everyone needs to practise, I guess. And then I...especially recently, kind of realised that isn't enough, certainly when you want to get into the style and nuance of a particular thing, so I'm kind of trying to really go back to the recordings a lot more and do some more transcribing. The most satisfaction I've gotten practising stuff has probably been transcribing and recreating and letting that assimilate into your plan. Everything else, you kind of get to the end of it and go. You know what, there's no real shortcut to that.

Mike talked about his unique approach to transcribing, and also to practice:

I used to just go note by note and write it down and then practise it by reading it and then try to memorise it but I'd never remember it for very long that way so when I realised I needed to work on my ear, I just started learning solos by ear and then writing them down at the end. Which took a long time.

I remember when I was 21 I learnt the album *The Bridge* and I put it on just one hour a day of my practise was *The Bridge* and I'd put the album on from beginning to end and just play along with it, and it took me about three-and-a-half months and after three-and-a-half months I knew all the saxophone solos, all the guitar solos, all the bass lines, I could actually play all of it. I'm not sure ... actually, I wrote some of those down, yeah. But that was the more effective way for me, for sure. I can remember most of those solos now and it's 20 years ago.

Henry also talked about problems associated with transcribing:

I've been trying to transcribe this 30 seconds or so of this solo. I've got it all written out and starting to work on the stickings and some of the phrases... sometimes little bits of it come out ... It's just the stupidest thing, like, it's just whatever this guy improvised on the day and it's taken me, like, six months.

In summary, Brad, Mike and Henry noted the importance of transcription as part of the processes of learning the language of jazz improvisation, but also identified limitations with it as a time consuming process.

### **4.12.3 Practicing to improve ear to instrument connection**

In relation to improvisation, the ear to instrument connection becomes an important factor: Being able to hear what is being played means that the improviser is actually improvising, not simply plugging in pre-learned melodies or riffs into corresponding harmonic environments.

Sam talked about practicing by ear:

I remember there was a slow process of playing tunes ... like a little backing track, and hearing how notes, set notes worked over things like whole note soloing, and just real slow practice. Number one actually was mainly trying to hear ... to get to the things that I'm hearing.

Kenny talked about his ear to instrument connection:

I always had this connection between what I was playing on the instrument and what I was hearing ... I could hear everything I was playing, and that goes back to the very beginning. There was never a time I was playing something and didn't know what was going to come out. It was all connected. So it was all sounds, and I think your ear is much quicker than, knowing the scale theory. You hear things and respond. You can do that quicker than working out what's the scale for this chord or where's the pattern, where should my fingers be. It's more built on what I heard.

### **4.12.5 Recording**

Hal talked about the benefits of recording himself:

Recording yourself is really important because ... which you should probably do with classical technical work as well, but in jazz it's important because you need to focus on rhythm, so it's important to listen to where you place the beat, are you happy with where you place the beat – nobody ever is – so what can I do to fix those things, working with that metronome, like we talked about before, or just play, you know, try and shift where I'm putting it.

Kenny talked about recording in a studio:

People think that recording something simple that anybody could do it but, you know – it's only three or four chords or acoustic guitar and they think, oh easy. (A) You've got to be perfectly on time, then you've got to be perfectly in tune, then you've got to get a great sound, you know, you haven't got to play too much.

All that and it's only a simple thing, you know, but there's other things

have to be done really well for it to sound really good. It doesn't matter how simple it seems. So those things teach you to be very critical of everything you do on the instrument, all the sound, the noise, the technical sort of things, to get it to sound ... so that it's going to sound good on the recording.

#### **4.13 Chapter summary**

All of the participants were extremely earnest about the experience of learning and practicing their instrument. The variation in age, background, musical education and instrument specialization gave the data a broad reach in terms of characteristics found in elite improvisers. The key findings that emerge from the data are that:

1. When practicing improvisation the ear must play a part in the practice method if it is to transfer into the performance situation.
2. Practising slowly is beneficial in terms of accuracy and control.
3. A high level of technical proficiency is an important facet of being an elite improviser.
4. Listening to music and listening to oneself through recording is also an important part of the process of learning how to improvise.
5. Practising to become an elite improviser takes many years of deliberate and conscious practice.
6. Elite improvisation takes place in the moment and conscious thought can inhibit this process.
7. In order to improvise 'in the moment', the artist must spend time practicing 'in the moment'.
8. Although certain techniques must be present in the practice routine of an elite improviser, no one method is better than any other. The individuality of the practice routine forms the individual style of the musician with all of its idiosyncrasies and limitations.

#### **4.14 Table of topics commented on in the data**

From the data, a table was compiled based upon the frequency of reference to themes. The table is presented below.



Topic	Mike	Henry	Hal	Kenny	Sam	Brad
Method books	✓	✓	✓	✓		✓✓
Early development	✓✓✓	✓	✓	✓	✓	✓
Practice habits	✓✓	✓✓✓		✓	✓✓	✓✓
Learning by ear	✓✓			✓✓		
Practising scales	✓✓					
Practice routines	✓✓			✓		
Use of resources	✓✓	✓	✓		✓✓	
Transcribing	✓✓	✓	✓✓		✓✓	
Listening to music		✓	✓✓✓			✓
Amount of and motivation to practice	✓✓		✓✓✓✓	✓	✓	✓✓
Visualisation				✓		✓
Technique	✓	✓	✓✓✓✓	✓✓	✓✓	✓✓✓
Memorization			✓✓	✓	✓	
Mental processes of practice	✓	✓		✓		✓✓
Mental processes of improvisation	✓	✓	✓	✓✓	✓	✓✓
Reading music						
Recording		✓	✓	✓✓		
Ear to instrument connection	✓✓			✓✓✓✓	✓✓✓✓	✓
Slow practice	✓		✓	✓✓		
Teaching			✓			✓
Practice issues		✓	✓			
Practising improvisation	✓✓✓✓ ✓	✓✓✓	✓	✓✓	✓	✓✓
Play-along recordings	✓✓		✓	✓		

**Table 4.1 Frequency of responses to researcher themes.**

The table above represents both the questions asked by the researcher and also any themes that emerged during the interview process and in discussing practicing to improvise. Two topics not covered in the research questions that were mentioned by most of the participants were.

1. Ear to instrument connection: This was covered by four of the participants, in some cases numerous times.
2. Transcribing: this topic was mentioned by four of the participants.
3. Listening to music: this topic was covered when discussing other activities that aided musicianship.

4. Recording: this topic, relating to self-analysis, was also mentioned by three of the participants as an important element in improving as an improviser.

#### **4.15 Conclusion**

Chapter four presented the data relating to the interview questions and identified the key themes that emerged. Chapter five will now discuss these findings and compare them with the literature review conducted in chapter two. From this analysis and discussion a series of recommendations for practice will be suggested.

#### **4.16 A final comment:**

Kenny related this anecdote about the thought process of a jazz soloist that re-iterates comments made by many of the participants relating to conscious thought when improvising:

Another famous story was that of Cannonball Adderley. He played this fantastic 20-minute solo in this club, and he came off and went to the bar, and a young guy came up and said, "Oh, Cannonball, that was a fantastic solo. What were you thinking before you played that?" He said, "Ah, here goes." [Laughs] Here goes, that's all he was thinking.

## **Chapter 5 - Discussion and Recommendations**

### **5.0 Introduction**

This chapter examines the data presented in Chapter four and how it relates to the research literature presented in Chapter two. In line with qualitative methodology, interviews were conducted in order to gain insight from elite improvisers. Chapter five also discusses implications from Chapter four in relation to the practice strategies and mental states of the elite improviser. These topics are relevant to both the aspiring improviser and the teacher. Finally, recommendations for the practising and teaching of improvisation are presented.

### **5.1 Relationship between the methodology and data**

In seeking to answer the research questions, a qualitative method of enquiry was implemented. This involved interviewing six individuals and asking questions designed to ascertain the process they had undertaken in becoming elite improvisers. The data was coded in line with the questions to enable the key themes to emerge and to answer the research questions. During the coding process, additional themes emerged that were pertinent to the research and these were included in the discussion.

All of the participants were extremely earnest about the experience of learning and practising their instrument. The variation in age, background, musical education, and instrument specialization gave the data a broad reach in terms of the practice strategies and mental states found in elite improvisers. The key findings that emerge from the data are that:

- When practising improvisation the ear must play a part in the practice method if this is to transfer into the performance situation successfully.
- Transcribing is essential to jazz improvisation when learning the language and stylistic conventions.
- Practising slowly is beneficial in terms of accuracy and control.
- A high level of technical proficiency is an important facet of being an elite improviser.

- Listening to music and listening to oneself through recording is also an important part of the process of learning how to improvise.
- Practising to become an elite improviser takes many years of deliberate and conscious practice.
- Elite improvisation takes place in the moment, and conscious thought can inhibit this process.
- In order to improvise 'in the moment', the artist must spend time practising 'in the moment'.
- Although certain techniques must be present in the practice routine of an elite improviser, no one method is better than any other. The individuality of the practice routine forms the individual style of the musician with all of its idiosyncrasies and limitations.
- Memorizing music is more effective if done aurally in the first instance.

The literature review investigated instrumental practice and specifically, practice relating to improvisation in detail. The review topics fall into two broad categories - instrumental practice related to improvisation, and the cognitive processes of improvising. The section relating to instrumental practice examined the nature of early musical experience and formative years and how practice habits are formed. This section also examined the practice process and how this may affect the efficiency and enjoyment of practice, topics such as motivation, the characteristics of successful practice, the documentation of practice and self-regulated practice were also examined. Leading studies into amounts of practice time and their relationship to performance were scrutinized, and methods of practice were also examined. The broader area of technique examined studies into memorization, technique and practising written music. Elements of instrumental practice such as deliberate practice, memorization, accuracy, self-regulation, documentation and expression were all considered. Characteristics in practice methods when reading music as opposed to improvising were also studied.

The section pertaining to improvisation pedagogy examined the literature from both a historical perspective and a teaching focused viewpoint. It contrasted

the ear-based learning mode of early jazz with the more formal, and text based, university improvisation courses and literature. The second section related to the cognitive states of improvisation performance and how these may benefit or hinder a musician.

## **5.2 Discussion**

The following chapter is organized in line with the topics presented in the literature review. Most of the themes in the literature review were reflected in the interview data. However, additional themes also emerged from the data that were less represented in the literature review. Some new topics also emerged in the interview data that were not present in the literature review and these are discussed towards the end of the chapter. The discussion now commences by exploring themes relating to the physical aspects of practice.

### **5.2.1 Early musical experiences**

The literature review discussed different ways a student may be introduced to a musical instrument. These include formal methods, such as beginning with lessons and reading simple melodies, or informally which consists of learning predominantly by ear. The data gathered for this study indicated that all of the participants began with a combination of both formal and informal ear-based practice methods, with some weighted on the formal side and others being more predominantly ear-based learners.

Given they are now all high level improvisers, it is possible that this is an important stage in the early development of the jazz improviser. The majority of the participants indicated that ear-based practice occurred mostly outside formal music education. An exception was Mike, who noted that it felt unusual and even daunting to him to be taught melodies by ear during lessons. Kenny's experience was also interesting in that he was initially formally taught on violin, but in learning to improvise on guitar, he was predominantly self-taught. These comments support the literature review that, in general, jazz students have to pursue ear-based playing outside the formal education environment as it is less valued or encouraged as a learning method (Priest 1989).

Another theme that emerged from the data was that most of the participants were imitating recordings in the initial stages of their musical development as a way to learn jazz vocabulary and also understand the role and sound of their instrument within the group context.

Almost all of the participants, even if not formally being taught, had some kind of mentor or role model early in their development. For Sam and Hal this was a musical parent, and for others an influential teacher or musical peer such as for Mike and Kenny. This latter one may also be an important factor in reaching the elite level as a musician, however it is outside the perimeters of this study.

### **5.2.2 Formation of practice habits**

Student practice habits have been well researched, and a suggestion is that common errors can become habits that persist throughout a musician's development (McPherson, 1999; Johnson, 2004). The interview data in this study was inconclusive as to whether these habits were present in the participant's early development, although some stated they were inefficient when practising during their formative years. Much of the research into younger or developing students also focused on motivation to practice. The data is at odds with this paradigm as none of the participants spoke about motivation issues in their early development. In contrast, many were practicing in their lunch hour at school, into the early hours of the morning, or even all day. The motivation for their actions is unclear, although all of the participants appeared to have a desire to improve from the beginning of their journey. The data also diverged from the research in the area of improvisation. As most of the formal research into instrumental practice habits is based on the learning and performance of pre-existing written music, it is difficult to compare and contrast written and improvised musical pursuits in relation to the formation of practice habits.

### **5.2.3 Amount of time versus method in learning music**

The literature review revealed general information about the number of hours

of practice required to reach an elite level in any skill-based task. Ericsson (1999) states that it takes 10,000 hours to reach an elite skill level, although this is an approximate figure given that the practice time was estimated by the participants in his study. Ericsson's study also only investigated classical musicians (violinists and pianists), and not improvisers. The data gathered in the study was inconclusive as to the exact number of practice hours accumulated by the participants, however, Mike, Hal, Henry and Brad indicated they were practicing every day at some point in their formative years, from this it is reasonable to assert that all of the participants will have practiced a minimum of at least 8000 hours and more probably, over 10,000 hours. As in the case of Ericsson's study it is impossible to ascertain accurate figures about exact practice hours retrospectively, as this relies on participants' memory as opposed to a scientific method for measuring amounts of time. The literature refers to the example of musician Charlie Parker practicing thirteen to fourteen hours a day for three to four years, and there are many more examples of this amongst the very best improvisers.

Research about efficient practice techniques tends to focus on specific groups, such as secondary or tertiary school instrumentalists and over shorter time frames - less than six months. One of the key aims of the study was to ascertain if efficient practice techniques trump mere "time spent" in instrumental practice. It is certainly possible to practice with more efficiency as Mike suggests "What I was doing in ten to twelve hours then, I could quite easily do in four now." Without a large study group across many musical genres and instruments over a 10-15 year time frame, it is difficult to categorically state that a certain number of practice hours correlate to a specific skill level (Williamson & Valentine, 2000).

Participants also noted many situations where informal practice played an integral role in their development as an improviser, and this activity is not generally included in studies relating to instrumental practice as it is considered performance. Anecdotal evidence over time strongly suggests that more than three hours a day over a period of six to eight years and an

intensive period of “all day” practice is necessary to reach the elite level as an improvising instrumentalist. Until a study that tracks students over this time frame is conducted, exact time requirements remain only estimates that may be flawed in their conclusion of what constitutes the actual practice required to become an elite improviser.

The literature review demonstrated that the efficiency and methods of practice play a larger part in creating an elite jazz musician than does merely an investment of time, and that the practice methods themselves influence how much time a musician is motivated to practice. Two musicians practising the same amount of time may have completely different outcomes in terms of proficiency if this is the case.

#### **5.2.4 The characteristics of deliberate practice**

It can be argued that all practice is beneficial in some way, and that any interaction with a specific task over time will result in improvement even if the musician is not fully engaged. Ericsson (2003) suggests that this is not necessarily the case and that improvement can only occur if practice is deliberate. Deliberate practice is described as practice that is ‘designed’ to improve performance. The data reflected an intention to improve, on the part of the participants, by designing specific exercises they deemed necessary to improve at a certain task, this thereby supports Ericsson’s assertion. Mike spoke about how his technical work was linked to performance outcomes by his teacher. Ericsson (1999) differentiated both work and play as not being deliberate practice. However, most of the participants described the use of playing along with recordings and/or performing improved avenues to experiment and practise as an integral part of the learning process. While the data supports Ericsson’s hypothesis in terms of deliberate practice, it however diverges in relation to the description of what may be construed as practice or “play”. One reason for this is that improvisation is inherently different to performance of a written piece of music. Miles Davis once famously told his musicians “I pay you to practice on the bandstand”. The performer is not reproducing specific pre-learnt material but composing in real time and



observing and adjusting during this process. This may be considered as both performance and practice. Another important factor in deliberate practice is the role of feedback and self-analysis. The act of recording oneself or being recorded is one example of self-analysis, and this emerged from the data as an important practice strategy for the participants. Long-term practice outcomes are more difficult to quantify and usually relate to some type of external goal or measure, although some may relate to self-determined technical goals. While the data indicated that although some of the participants used informal practice strategies, and that play and performance were part of their development, they undertook these with the understanding that they would improve their musical abilities in some way, and so this can be considered deliberate practice within the context of jazz improvisation.

#### **5.2.5 Practising technique**

Technical practice is a necessary part of the musician's regime as espoused by Kickstein (2009), and the data from the study suggests that technique plays an important role in the development of the elite improviser. The majority of the participants stated that they regularly practised technique in the form of exercises to improve perceived deficiencies in their skill set, or simply to maintain fluency on the instrument. However, the role of technique, and more specifically the perimeters for what constitutes technique, in the development of improvisation skills are less clear.

Three of the participants saw technique as being unrelated to improvisation, and practised technique in a different way to improvisation. Mike suggested that technical exercises that relate to the improvisational language could be more helpful when actually improvising, than unrelated exercises might be. Brad, Sam and Hal all stated that they thought of technique and improvising as two separate cognitive tasks, although they all felt that technical exercises were extremely important to their ability to improvise. Both literature and data confirm the role of technique in the development of the musician. However, the role of technique in the development of the elite improviser is less clear. The literature review discovered that texts related to technique are largely

based within classical tradition and technical studies for jazz improvisers are less common. That Brad, Sam and Hal used technical exercises from the classical repertoire in their practice emphasises the importance of this tradition and also the predominance of technical literature in this genre. Another qualifier is the type of instrument being played, the participants who play instruments traditionally associated with classical music tended to utilize classical technical exercises. Drum set, and saxophone are two instruments that are less likely to draw on classical literature for technical exercises, although the snare drum has its own rudimental tradition that heavily informs the jazz improvisers' language.

### **5.2.6 Practicing written music (retention and accuracy studies)**

The literature review discovered an over-representation of research toward memory and accuracy studies when assessing the practising of written music. It was clear that these two areas are of high importance to musicians working in the classical genre. Musicians involved in the jazz and improvised music genres are less likely to be concerned with the element of reading music, and this was evidenced in the interview data. Kenny spoke about memorization only when discussing the performance of a piece within a Western art context. In contrast, Brad and Sam were more concerned with interpretation and expression in relation to reading notation. The other participants did not comment about reading music in relation to practice. All of the participants in the study are however competent readers. This suggests reading is a skill that improvising musicians also value.

### **5.2.7 The role of aural, visual and mechanical memory**

The literature review identified aural, visual and mechanical memory as the three types predominantly used by musicians and discussed the importance of these, especially within the genre of Western art music.

The two main memory strategies identified by researchers, that musician's use are mechanical and aural memory. Mechanical memory tends to be relied upon more in the early stages as aural ability is still developing and musicians are likely to use repetition as their main practice strategy. Although two

participants mentioned repetition, most spoke about using their aural skills to memorize music rather than other strategies such as repetition, mechanics or score visualization. The pervasive nature of aural memory was evidenced by Sam's experience with a score he was extremely familiar with, having read it almost every day for a year, yet could not confidently play it without the music. After a break he relearned the music by ear and was able to play the whole score from memory.

Mechanical memory may also inhibit the improviser as it re-enforces pre-existing or familiar 'patterns' or motifs. Elite improvisers in the jazz genre certainly use mechanical memory; this is evidenced by their use of recurring vocabulary or licks in their improvisations. However, the ability to manipulate these motifs is the role of the ear and its ability to lead the action of playing the instrument. The participants all mentioned ear to hand connection as the ultimate goal and primary focus of the practicing improviser.

When discussing the memorization of written music, two strategies were mentioned most in the data. The first of these was repetition, or playing through the piece many times. The other was being able to pre-hear the music being played. Sam mentioned that he was still unable to remember music he had read many times, until he had learned it by ear. The data suggests that ear to instrument connection also plays an important role in learning and memorizing written music.

### **5.2.8 Limits of the score**

The written note is the primary source of material for the classical musician, even though much of the repertoire has now been recorded. Due to its emphasis on improvisation however, the jazz genre relies more heavily on recordings and draws from this aural history. Notated scores of the music are available in the Real Books. These are in many cases simply transcriptions, (sometimes inaccurate) of the recordings that form the catalogue of the music. The issue with the written note, and specifically with Real Books, is that they are inadequate in terms of the highly nuanced style of the music. Musical

notation was designed well before jazz was first played and is ill equipped to fully describe the nuance of this genre, especially in terms of rhythm (Borgo 2007). The jazz musician may consult a score to accurately learn a composed melody but is more inclined to study recordings in order to gain a greater understanding of improvisation. This was evidenced in the interview data as Hal spoke about learning the melodies and chords to tunes from the Real Book, while Mike spent time learning an improvised recording by ear. The other participants also spoke about sourcing recordings when studying the nuances of jazz style.

### **5.2.9 Practising for optimal muscle control and accuracy**

Much of the literature with regard to practising a task for maximum accuracy recreation described the effect of slow practice in maximizing control and accuracy. The slowing down of activities was beneficial, as it allowed tasks to be performed correctly from the outset and therefore high quality repetition was achieved. Brad, Mike and Hal spoke about this strategy when addressing the area of technique. Hal and Kenny also spoke about the importance of recording oneself to discover inconsistencies in rhythmic accuracy, tuning and sound. The interview data confirmed the value of slow practice in building accuracy and control of muscle movement.

### **5.2.10 Self regulation in practice**

One of the attributes of elite improvisers is that at some point, generally early in their careers, they have also become self-regulated in their practice habits, and this appears to be a major contributing factor to their success over the long term. The interview data re-enforced this as all of the participants stated that they were self-regulated in their practice habits. This was evidenced in the area of improvisation specifically, as most of the participants spoke about developing skills independent of a teacher or improvisation class during their formative years. Zimmerman (2010) also states that self-directed learners seek help when necessary and most of the participants expressed that they were mentored early in their career and also continue to seek advice. Both Sam and Henry were still studying with leading exponents on their respective instruments at the time they were interviewed, to cite two such examples.

### **5.2.11 Expression from the written note**

Swanwick (2001) suggests that expression is a key ingredient in music education and should be included in music education programs at the earliest stage. For the jazz improviser, awareness of *how* a note or musical phrase is being played, rather than *what* is being played becomes central to their understanding of the genre. It is a characteristic of traditional music education to favour text-based or written representation of concepts. This has ramifications for the jazz student learning how to improvise because examples of the music maybe presented in a text based format, instead of a recording or demonstration (Borgo 2007), and thereby lack the subtle nuance of how the music should sound.

A limitation evidenced in the literature is that expression in music may be given less weight in education than the ‘nuts and bolts’ or functional characteristics that are more clearly definable and assessable. For the improviser, expression may be discovered more intuitively by listening and imitating as part of their formative development, and this was evidenced by both Sam and Brad who spoke about bringing their own personality or musical ideology to the music they were reading and performing. In Brad’s case this related to the interpretation of musical score, and for Sam, to nuance in the sound and rhythmic shading of his performance.

### **5.2.12 Pathways to success in practice and performance; motivation and goals**

The literature review identified two conflicting positions regarding motivation to practice. Davidson et al. (1996) state that practice in itself is not inherently enjoyable, and that improvement is the motivator to practice. McPherson and Renwick (2001) and Csikszentmihalyi (1990) expressed that practice can be made more enjoyable and this can become a motivational factor in the long-term practice habits.

The interview data did not confirm either of these views as none of the participants stated that they didn’t enjoy practice. However, most stated they

were motivated to practice because practice was necessary to improve. The interview data confirms the literature review in that improvement and progress are motivators to practice, but this does not discount the fact that enjoyment of the act of practising may actually be a significant motivational factor. It is reasonable to suggest that the participants enjoyed practising, as they have spent an inordinate amount of time involved in the process and this would be unlikely if it was not enjoyable, given that there are no direct tangible rewards. Although none of the participants were specific about their current practice regimes, all mentioned the difficulty of being able to prioritise practice above other external pressures. However, some of the participants suggested that an impending performance or project could be a factor in motivating them to practice.

### **5.2.13 Characteristics of success in learning or practice**

Research into the role of practice in attaining an elite level of skill at any task shows unequivocally that this is the major contributing factor in success. Ericsson (1996) states that many hours of practice are required to reach the elite level but practice may not ultimately be enjoyable. This is contrasted with McPherson and Renwick (2001) who found that students could enjoy practice if specific strategies were employed. Csikszentmihalyi (1990) and Sterner (2005) also found that practice could be inherently enjoyable if certain elements were present, most significantly, a specific mental state. It would seem that excelling at any task is accelerated if a positive feedback loop is present, that is if practice is enjoyable, so the activity is performed more often and improvement occurs. Accounts from experienced master jazz improvisers overwhelmingly point towards them undertaking many hours a day for extended periods in their formative years. Charlie Parker, John Coltrane and Pat Metheny are three such examples.

Formal research into the practice habits of elite improvising musicians is almost non-existent, however, there is a large body of anecdotal knowledge available through the numerous interviews, documented workshops and amongst the musicians themselves that can be drawn upon to build a set of

criteria that must be present.

The most obvious element is a practice regime, but others include starting at a young age, some kind of musical experience in the upbringing and the presence of a mentor through the early and formative years. Musicians describe opportunities to rehearse and perform with others in a competitive but supportive environment as an important factor in their development. The overarching characteristic appears to be that the more successful musicians are self-motivated in practice and in the design of their development and have spent more time practising deliberately. Having a parent or family member who is involved in music or is a musician themselves also appears to be beneficial but not essential. All of the participants spoke about at least one of these as being a characteristic of their development.

#### **5.2.14 Differences in written and aural based musical systems**

Although Western art music originally involved a high degree of improvisation, apart from for a few artists and the more contemporary Western art styles, it has largely disappeared. Whatever the reasons, the ramifications for education have been to omit this ability from the skill set. Reading, technique and memorization have become more important to the Western art musician and the development of the ear to instrument connection has taken a back seat to an aural approach based upon transcribing music or sight singing. While these skills are important for all musicians, the key element present in the elite improvisers arsenal is the 'ear to instrument connection'. This is evidenced by the number of elite improvisers who, although not advanced readers or technically endowed, have forged careers and made statements at the very highest level of the jazz genre. As described in the literature, many of the practising strategies of these elite improvisers involved listening to recordings, copying these recordings and using this language while practising. The interviews re-enforce the importance of aural ability to the improviser, and demonstrate how this has affected practice strategies. The majority of the participants spoke about the role of the ear in guiding improvisation practice, as the improviser is free to choose what notes to play and then the factors

that inform which notes are chosen become paramount. Hal spoke about how transcription may inform this process. Mike and Sam spoke more directly about the ear to instrument connection and its importance to the process of improvising. Mike suggested that ear to instrument connection could be developed through the act of improvising itself and being spontaneous. Sam was more direct in his description of improvisation being 'ear to hand'. Many of the participants suggested that practicing improvisation involved experimentation and a sense of spontaneity in the choice of which notes to play. Sam talked specifically about the ear leading the creative process as opposed to a more mechanical or technical approach. Brad's comments are also insightful and underline the differences in the two approaches.

"I guess, [with written music] all the information's on the page and the other one, the information's kind of off the page."

The use of the words 'off the page' refer to music that is experienced as sound as opposed to written music, and it is within the realm of sound that the improviser predominantly dwells.

### **5.2.15 Pedagogy of improvisation**

In terms of the recorded history of music, jazz is a relatively new art form and the history of jazz education is an interesting one. The earliest teaching of jazz music was mainly through an informal mentor system, where improvisation was largely learned by ear. During the late 1940s as university courses first began to include jazz in their music programs, they maintained a Western art pedagogical approach. Language was learnt from score and improvisation was systemized into a theoretical system largely based on chord scale harmony, meaning that every type of chord quality corresponded with a limited number of scale choices. The informal approach that underpinned the beginnings of the music became clouded in a Western art approach valuing reading and memorization, and the ear to instrument connection was marginalized. Although this is now being remedied, there are still a large number of theoretical improvisation resources from this era underpinning improvisation practice. The data supports this hypothesis in three ways. Firstly, all of the participants spent time learning improvised solos



from recordings with an intention to learn the jazz genre. Secondly, all of the participants stated that their improvisation practice occurred largely outside the formal music education environment of the classroom and/or private lessons. Thirdly, when discussing the practice of improvisation, none of the participants stated that they spent any time reading from score, but conversely played predominantly by ear. These elements evidenced in the interview data demonstrate the importance of the aural approach in learning the language of jazz improvisation, and in forming a jazz improvisation curriculum.

### **5.3 Mental processes of practice and improvisation performance**

The next section now discusses the mental aspects of practice and also how mental states can affect improvisation performance.

#### **5.3.1 Cognitive processes of instrumental practice**

At the highest level in many activities, the greatest exponents speak about the importance of the mental aspects of their chosen pursuit. This is re-enforced by the literature, which suggests that mental focus does influence the effectiveness of practice (Driskell, Cropper & Moran, 1994; Perry, 1939; Duke, 2011). An essential part of effective mental focus in instrumental practice is awareness in three different areas - auditory awareness, kinaesthetic awareness and visual awareness (Wollner & Williamon 2012). Although espoused by most teachers, this has not been studied in great detail, especially with regard to performing musicians. The few studies that do exist generally focus on classical music and are short-term studies.

Participants in the study confirmed the notion that awareness is an important element in successful practice. The participants all suggested that they were aurally aware of what they were practising. Brad also stated that he was conscious of the physical aspects of playing his instrument while practising. The other element that surfaced in the data is a tendency for the participants to practise ear-based exercises. In terms of improvisation this is even more apparent, and all of the participants stated that when practicing improvisation they actually just improvise. This suggests that the deliberate cognitive

process of improvisation is reflected in the practice environment. The participants seemed less concerned with visual awareness during practice.

### **5.3.2 Mental practice**

The literature pertaining to mental practice does support its benefits to skill acquisition. However, Brad spoke about hearing and visualizing away from the instrument when learning written music. None of the other participants spoke about mental practice away from the instrument specifically as a practice strategy. In the case of elite jazz performers it would appear that mental practice is only considered as a strategy if hands-on practice time is unable to be accomplished.

### **5.3.3 Mental awareness in practice**

The literature review and the interview data both described different mental states or 'ways of thinking' that were present in both practice and performance. As instrumental practice is generally a solitary pursuit, the practising musician is able to deviate from strict metronomic time, repeat musical passages at slower tempos, stop and start, and correct mistakes outside the format of group performance. The practice mentality allows for judgment and conscious thought about what is being played and is a necessary element of deliberate practice.

The interview data aligns with this concept, as all of the participants spoke about being aware of the sound of their instrument by listening to themselves while focusing on a particular element of their playing when practising. Mike talked about letting his internal hearing lead his playing by pre-hearing what he was playing in order to re-enforce his ear to instrument connection. Henry spoke about focusing on the sound of specific musical elements such as dynamics, accuracy and note placement and Brad was also focused on the physiology of playing his instrument. The literature review indicated that the optimal cognitive state for deliberate practice is one in which the participant is focused on some element of the sound of their instrument while they are practising, and this is re-enforced by the interview data. All of the participants spoke about this being the focus of their attention. The participant's mental

awareness is centred on creating a feedback loop designed to judge the sound elements of the practice and adjust these as is deemed necessary. This cognitive state, as described by Duke (2009), is necessary for practice but it would seem the performance of improvisation is best effected when self-judgment is suspended as this may interrupt the creative flow of improvisation. The interview data confirmed this as the participants spoke about thinking less consciously, and not judging themselves or their playing as the optimal mental state for improvisation performance.

#### **5.3.4 Cognitive states of the improvising musician**

Both the literature review and the interview data confirmed that authentic creative improvisation is optimal when the performer is able to eliminate conscious thought or judgment about what they are playing during a performance. This mental state has been described by others in different ways such as 'mindfulness' or the 'zone', and is often cited as a major contributor to experiencing peak performance. Both Mike and Brad stated that they feel they can improvise more freely if they 'think less' and are more intuitive about what they are doing. Kenny and Sam were less direct about their thought process, although both suggested that they were listening and reacting when improvising as opposed to thinking consciously about what they were going to play. Mike spoke about letting his ear direct everything he was playing. The literature in relation to the cognitive state of improvising musicians asserts that it draws on both the conscious and unconscious mind: Robert Levin states: "...improvisers are both the "creator and the witness" (Berkowitz et al. 2010, p.17).

It is an important component in being able to improvise at the elite level. Both Berkowitz (2010) and Schroeder (2002) allude to the balance between knowledge of style and harmonic function and the ability to spontaneously invent a completely new musical creation. Improvisation is often defined as 'composition in real time'. Werner (1996) draws on psychology in teaching improvisation, where feelings of self worth are an important factor. Both Brad and Hal stated that self worth and confidence allow greater freedom during

the performance of improvisations.

If conscious thought is an impediment to true improvisation and the goal of practice is to be able to perform at an optimum level, it would seem prudent to practise improvisation in the context of performing improvisation. In doing so, the improviser would benefit from practising while in the same mental state as they are to perform in, that is the practising improviser should not allow himself or herself to think consciously about what they are playing. This might seem a simple task, but as any student of meditation would know, stopping the mind from 'thinking' is not so easy, as Mike expresses in his statement:

“So ultimately in performance, the mind shouldn't be thinking about anything apart from hearing the music that you want to be playing. But getting to that point is tough. And you've got to practise that, too, in the practice room. You can't just expect [it to happen]”.

#### **5.4 Additional topics that emerged from the interviews**

A number of additional topics relating to the practice and performance also emerged from the data and these are discussed below.

##### **5.4.1 Practising musicianship**

All of the participants spoke about the importance of listening to other musicians either live, or on recordings, to inform their knowledge of the music and the language. In terms of language familiarization this is akin to moving to the area where a language is spoken in order to immerse oneself in the sound of a language and it's everyday use, as opposed to referring to a textbook version of how the language is spoken. Apart from the very early stages of the music, much of the aural history of jazz has been recorded and continues to inform the jazz student and musician alike.

##### **5.4.2 The practice ritual**

In researching optimal procedures for instrumental practice, it might be expected some type of formula or set criteria would emerge from the interviews. This was not the case however, as every participant employed different strategies when practising, from a very set daily schedule, to not practising formally at all. Mike talked about the value of slow practice and

having a daily ritual. Hal stated that he enjoys practising in the morning, although he is easily distracted. Sam expressed his positivity to having feedback from a teacher, and Brad from being prepared by familiarity with the instrument through practising for a specific performance. The variety in the responses suggests that practice and preparation is extremely personal and that no one practice 'method' or 'system' may be suitable to everyone. What did emerge from the interviews and literature review is that musicians at the elite level refer to practice in a ritualistic way; it is a lifestyle that becomes an integral part of their identity beyond a hobby or passing interest.

#### **5.4.3 Use of resources**

There is no shortage of resources designed for instrumental practice. In terms of improvisation, many of these are play along type resources, or books that focus on specific improvisational concepts such as using specific rhythms or melodic devices over a variety of harmonic environments. The two main resources used by the participants were either books based on technical exercises, or some version of play along or backing track tool. Only one of the participants mentioned using a book based on improvisation, and in that case it was used 'mainly for the play-along'. The Real Book has traditionally been a standard resource for the jazz musician, but it has recently fallen out of favour as musicians prefer to know the repertoire from memory instead of reading it, and technology has negated its use. None of the participants spoke about using the Real Book as a practice resource. The metronome was mentioned as a valuable tool in terms of awareness of pulse and also as a gauge of progress with exercises relating to speed or accuracy.

#### **5.5 Summary of key points in the interview data**

The goal of this study is to ascertain the role of practice strategies and of the mind in developing the skills of elite jazz improvisers, and also to look at how this can be used in performance to access knowledge that the individual may not otherwise have access to.

A key theme that emerged from the data was that participants all felt that conscious thought was an impediment to fluid improvisation. Another element

to emerge was that actively listening to oneself, and/or the music as a whole, aids in the ability to play more intuitively and not think consciously about what is happening in the music.

## **5.6 Summary of key points in the literature review**

The following is a summary of the key points that emerged from the literature review.

- It takes many hours of practice over years to become proficient at any chosen skill.
- Having defined goals can enhance practice efficiency and enjoyment.
- The aural method of learning is integral to becoming an elite improviser, and ear to instrument connection is paramount.
- Practice strategies that most closely resemble actual performance situations are an integral part of the improvisation practice process.
- Slow practice is an effective method for technical practice. Technique is a highly valued area for the musician and music researcher.
- Memory of music can take the form of aural, mechanical or visual, although aural memory tends to be the most enduring and accurate for the musician. Mechanical memory is part of the improvisation equation, but it can undermine continuity and flow during the improvisation process.
- The psychology of practice and performance in music is under valued in teaching and practice.
- The most advanced and revered improvisers highlight mental state and psychology as an integral part of becoming a competent improviser.
- Formal music training tends to over-emphasise reading and technique and under-emphasise aural ability and expression and/or individuality. The latter being essential to the jazz improviser.
- Elite improvisers have, for the most part taught themselves, or the most valuable things they did in terms of becoming improvisers were separate to their formal learning environment.

### **5.7 What new information emerged from the interview data**

The interviews diverged from the literature review in a number of areas and shed new light on the process of becoming an elite improviser. Although research into instrumental practice is abundant, there exists little research into the practice processes of the improvising musician. The interviews suggested new ideas about how this process occurs and how it may differ from traditional instrumental music practice.

- When practicing improvisation the ear must lead the hand, as opposed to the hand reacting to visual cues, so that a strong ear to instrument connection is forged.
- Elite improvisation takes place in the moment and conscious thought can inhibit this process.
- In order to improvise 'in the moment', the artist must spend time practising 'in the moment'.
- Although certain techniques and strategies may be present in the practice routine of a master improviser, no one method is better than any other. The individuality of the practice routine forms the individual style of the musician with its various idiosyncrasies and limitations.

### **5.8 Recommendations for future practice**

Based upon its findings, the study makes five recommendations on how improvisation may be practiced and experienced by the individual, which in turn may impact the way improvisation is taught.

#### **Recommendation 1 - Learning by Ear**

It is recommended that aspiring improvisers in the jazz genre spend as much time as possible in their formative years learning by ear, including learning melodies, improvisations or any other musical motif. The goal of learning by ear is to build fundamental ear to instrument connection, which is vital if an instrumentalist is to reach a high level as an improviser. It is recommended that learning by ear and improvisation be included across all music programs as part of a balanced musical curriculum. This may not necessarily be jazz specific in terms of genre.

### **Recommendation 2 – Amount of practice**

It is recommended that in order to reach the highest level as an improviser, a daily practice schedule be instituted containing a balance of technical exercises, sight-reading and authentic improvisation. In all cases, elite improvisers have spent an extraordinary amount of time practising using a combination of these methods in order to achieve success in their craft. Some musicians cite practicing up to 14 hours per day over a number of years.

### **Recommendation 3 - Awareness**

It is recommended that the instrumental student be made aware of the importance in their practice of listening carefully to themselves. One of the key elements of deliberate practice is the concept that the student is aware of what they sound like. A recording device is an excellent tool. This feedback allows for an adjustment to be made which potentially leads to improvement. Awareness may also manifest itself as kinaesthetic feedback or visual feedback, by using a mirror or a video recording device. Awareness of specific senses is also beneficial in obtaining a state of “flow” which as Csikszentmihalyi (1990) states may increase enjoyment of a skill based task.

### **Recommendation 4 – Slow practice**

It is recommended, in order to increase the probability of the musical exercise being performed accurately in terms of rhythm and/or pitch, a slow tempo should be chosen. This tempo might be half the intended performance tempo, or even slower. Slow practice is cited as an important strategy in skill based acquisition.

### **Recommendation 5 – Improvising in the moment**

It is recommended that in order to be able to improvise in a performance environment and play “in the moment”, improvising “in the moment” must be also be practised. The act of true improvisation may be inhibited by conscious thought and as reoccurring thought patterns are intrinsic to the human condition, the act of ‘not thinking’ must be practised so that an optimal mental



state can be transferred to improvising in a performance situation.

### **5.9 Summary of Chapter Five**

This study set out to explore the elements of instrumental practice that are unique to elite improvisers and how these differ from traditional instrumental practice. Through investigation of a small group of diverse jazz improvisers, key elements have been discussed and documented. One of the difficulties with practicing improvisation is its intangible nature, as noted by early exponents of the art form.

The mismatch of a largely aural musical tradition with a teaching tradition based primarily on the written note has created a system that is not entirely conducive to learning the art-form of jazz, which is so heavily improvisation-based. Chaffin (1997) Swanwick (2001) and Borgo (2007) all espouse the importance of expression in the learning and practicing of written music. Elements of performed music that are difficult to notate such as tone, intensity, texture, rhythmic shading and note shape are also the most important in conveying expression in jazz music. The reliance on written score to communicate both theoretical and musical ideas may be having a detrimental effect on those students wishing to pursue jazz to the elite level. Much of the subtlety of the music, especially its rhythm, is lost. The chapter emphasised the importance of learning by ear, and furthermore it also recommended that the mental processes of improvisation become an integral part of the practice of the aspiring improviser.

Chapter six now summarizes the project, answers the research questions, and sets out the limitations of the study as well as the recommendations for any further research.

## **Chapter Six - Conclusion**

### **6.0 Introduction**

This chapter sets out how the aims of the research outlined in Chapter one were fulfilled in line with the research questions. It also discusses the significance of the study and its limitations. Furthermore, recommendations for future research are suggested and weighed against the discussion chapter before final remarks are made.

### **6.1 Aim of the study**

This study broadly aimed to identify the key elements of instrumental practice that lead to successful performance outcomes. The study focused more specifically on the key elements in the practice methods and mental processes of the elite jazz improviser and how this related to the performance of improvisation through the following two research questions:

1. What practice methods and strategies are utilized by elite jazz musicians to develop skills in the art of improvisation, and how do these methods and strategies differ from those associated with non-improvised or predetermined musical pieces?
2. What mental processes do elite jazz musicians use when practising in order to reach their full potential as improvisers?

The study identified strategies that maximized performance outcomes and also allowed practice to be efficient and rewarding. Specifically, it discovered unique practice methods utilized by leading improvisers that differ from those traditionally used in instrumental practice that focuses on the written note. It also revealed how mental process can positively influence improvisation performance by attaining certain mental states that negate the hindrance of conscious thought.

In order to uncover the key elements in the elite improviser's practice process, interviews were conducted with six musicians of varying ages, educational

backgrounds and instrumental specialization. The findings of these interviews were compared and contrasted with accounts of master improvisers. Formal research relating to instrumental practice was also considered in gathering a more global understanding of efficient practice techniques instituted by musicians from non-improvising traditions. A qualitative approach was employed for its suitability to the arts and humanities, and data was organized in relation to key topics that emerged from the literature review.

The key findings of the study were as follows:

Practice habits are formed early in a musician's career and the importance of practice strategies may not be recognized until much later, or perhaps not at all. The pervasive nature of the Western art tradition on school music programs (especially in Australia) emphasise the reading of written music and unless a student pursues improvisation outside this environment or within a specialized program, they have a reduced capacity to improvise or create their own music. Research and anecdotal evidence both point to ear-based practice being a major contributor in producing elite improvisers. The specific strategies used by elite jazz musicians are less documented, however, deliberate practice or practice that is done in a focused way is an important characteristic.

For the improviser, imitating recordings would appear to be an important practice strategy in learning the language of jazz, as the expressive range and nuance of the music is learnt in its entirety. The use of written score in communicating jazz language is problematic as it falls short in terms of rhythmic accuracy and nuance. Text-based descriptions of improvisation and improvising also may be inadequate in detailing high-level concepts, especially those of the mental processes experienced by the elite improviser. Eight to ten thousand practice hours are necessary in order to reach the elite level as an improviser, and most of these hours are accomplished early in the formative years. Elite improvisers also state that their practice is deliberate and goal oriented, and that ear to instrument practice is an essential element in the process of becoming an advanced improviser.

Improvisation differs from the interpretation of written music, as it requires the development of an ear to instrument connection in order to improvise in a compositional way. Musicians in the Western art genre also value aural skills, however, the act of improvising opens the performer to judgment from others and self-judgment in terms of 'what' is being played. This characteristic is inextricably linked to self worth and self-image, or ego, and so was also included in the study. Participants in this study found that a positive self-image was a powerful ally in the performance of improvisation, and were in agreement that an ear-based practice method was the most efficient way to assimilate the jazz language and gain an understanding of the complex higher order elements of the music. The factors that influenced motivation were also investigated and it was found that the presence of a mentor, a supportive but competitive musical environment and goal oriented focus were all important factors leading to motivation to practise consistently.

## **6.2 Significance of the study**

This study is significant as it uncovers some of the key practice strategies utilized by elite jazz improvisers. It also revealed the significance of mental process in the performance of improvisation. Importantly, this knowledge may be used to inform the practising and teaching of improvisation. As far as the researcher is aware, this is the first study of this type that investigates the practice methods used by elite level improvisers, in the jazz genre in Australia, by studying the musicians themselves.

The research provided the basis for an approach to practising improvisation that could vastly improve the success of jazz students in their formative years and so influence their professional careers.

Practice can be made more enjoyable by understanding the paradox of goal oriented deliberate practice and its relationship to practising in the moment or in 'flow'. Mental process was identified as an important factor in the performance of improvisation at the elite level, but this plays a small or non-existent role in the overall education of improvisation in most formal

educational environments and in the majority of improvisation texts.

If psychology in terms of mental process and self-image were to play a bigger role in the teaching of improvisation, in conjunction with technique and the theory of improvisation, this could create improvisers who are less fearful, more creative and more individual. These attributes have long been identified in some of the greatest improvisers of the jazz genre such as Louis Armstrong, John Coltrane, Thelonius Monk, and Miles Davis.

### **6.3 Limitations of the study**

This study attempted to answer the research questions in a valid and authentic way. However, because the study was selective in its participants and method of enquiry, it is important to note that the findings of the study may be limited in their generalisation to a wider setting.

All of the participants were from the same tertiary institution and musical community. The participants had all spent time teaching at the institution and all had taught improvisation in a similar context.

The number of participants, while representative of different ages and instruments, was also limited in both number and stylistic range. All of the musicians were involved in post bop and progressive jazz. The study did not include participants from the avant-garde or early/traditional jazz styles.

The research approach was limited in terms of a single interview with each participant and interviews were conducted by the researcher; a situation that can lend itself unintentionally to coaching or leading participants in a certain direction.

As many of the topics were complex and often intangible, the ability of the participants to explain their thoughts with clarity in the time available may be seen as a limitation.

Finally, as the research methods were qualitative and involved potential

subjective interpretation of complex concepts by a single researcher, there is the possibility that the researcher may have interpreted the data in light of their own experience and philosophy.

#### **6.4 Recommendations for future research**

Having identified some of the key elements in efficient and rewarding practice, and how practising by ear can benefit the development of improvisation, it is also important to note that the study of practising to improvise in the jazz setting is a new one, and that further research in this area would be beneficial in many areas by aiding a greater understanding of the concepts presented.

It is recommended that future research include longitudinal studies that investigate practice over a larger time span of up to ten years with a group of emerging musicians. This would more accurately ascertain how many hours and years are necessary to become an elite musician. Practice journals could form the basis of the study, and care would need to be taken in the documentation of practice time and techniques. A study of this type would also yield more exact quantitative data that more accurately distinguishes between the amount and quality of practice required to reach the elite level as an improviser.

It is recommended that comparative studies into ear-based teaching methods versus reading only teaching methods of improvisation be conducted over a longer period of time at the tertiary level. Shorter-term studies into aural learning have been conducted, but these do not take into account the long-term effects of aural learning on jazz improvisation.

This study ascertained that mental processes play an important role in the effective practice and performance of improvisation. It is recommended that a comparative study of musicians employing mindfulness during practice would ascertain its effectiveness, as well as determining how to achieve mindfulness for improvising.

It is recommended that further research be conducted into teaching methods

that include mindfulness as an integral and major part of the learning process of improvisation.

## **6.5 Conclusion**

The aim of this study was to gain a greater understanding of the role of practice in the development of musicians who have attained a high level of ability in the skill of improvisation. The rise of jazz studies in the tertiary setting has intellectualized the teaching of improvisation, and this is at odds with the early history of jazz and accounts by elite improvisers themselves. Ear to instrument connection and intuitive performance can have a major impact on the performance of improvisation, and yet these are rarely discussed in the majority of improvisation texts. Elite improvisers state that mental process is an integral element in their ability to improvise to their highest potential yet this element is lacking in the large majority of improvisation texts. It is hoped that this study will encourage ongoing discussion about the teaching and learning of improvisation, especially with relation to the psychology of practice and performance.

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## **Appendix A - Brief Biographies of Jazz Musicians Cited in the Thesis**

Herbie Hancock - <http://www.herbiehancock.com/home.php>

Herbie Hancock was born in Chicago in 1940 and is a jazz pianist, bandleader and composer. He began playing piano at 7, initially studying classical music and started his career playing with Donald Byrd. In May 1963 he joined the Miles Davis Quintet, a group that also included Ron Carter, Tony Williams and Wayne Shorter.

His albums *Empyrean Isles* (1964) and *Maiden Voyage* (1965) were two of the more influential jazz recordings of the 1960s. Hancock's best-known compositions include 'Cantaloupe' Island', 'Watermelon Man', 'Maiden Voyage', 'Chameleon' and 'Rocket'. His 2007 *River: The Joni Letters* won the 2008 Grammy for Album of the Year.

Dave Liebman - <http://davidliebman.com/home/>

David Liebman was born in 1946. He began classical piano lessons at the age of nine and saxophone by twelve. Liebman studied with Joe Allard, Lennie Tristano and Charles Lloyd. In the early 1970s, He began playing with Elvin Jones and was subsequently hired by Miles Davis. Between 1970–74, Liebman also played with the Open Sky Trio with Bob Moses and then with pianist Richie Beirach in the group Lookout Farm. This group recorded for the German-based ECM label as well as A&M Records while touring the U.S., Canada, India, Japan and Europe. In 1977, Liebman toured the world with pianist Chick Corea followed up the next year by the formation of the David Liebman Quintet. Liebman has been featured on several hundred recordings of which he has been the leader or co-leader on over one hundred and has

taught at universities and in clinics around the world.

Jerry Bergonzi - <http://jerrybergonzi.com>

Born in 1947, he first gained recognition as a member of the Dave Brubeck Quartet recording nine albums with Brubeck, from 1973 to 1981. Bergonzi currently teaches at the New England Conservatory of Music in Boston. He is the author of *Inside Improvisation*, a multi-volume series of instructional books with play-along CDs and videos, and another series of books about improvisation published by Advance Music.

Pat Metheny - <http://www.patmetheny.com>

Metheny was born in Missouri in 1954. After graduating from High School he briefly attended the University of Miami in 1972, and then moved to Boston to take a teaching assistantship at the Berklee College of Music. In 1975 Metheny joined Gary Burton's band, and eventually recorded his debut album as a leader, *Bright Size Life*. He formed The Pat Metheny Group with co-writer Lyle Mays and released many albums. He has also recorded with artists such as Ornette Coleman, Roy Haynes, Herbie Hancock, Chick Corea and Michael Brecker.

He continues to tour, playing between 120 and 240 concerts a year.

Michael Brecker - <http://www.michaelbrecker.com>

Michael Brecker was born in 1949 and died on January 13, 2007. He is one of the most recorded saxophone players in history appearing on over 700 albums. Brecker began studying clarinet at age 6, then moved to alto saxophone in eighth grade, then tenor in high school. He moved to New York City in 1969, and at age 21 joined the jazz-rock band 'Dreams' which included his brother Randy. They later formed the Brecker Brothers band from 1975 to 1982 and Michael also recorded with many artists mainly in the rock and pop style.

Brecker recorded his first solo album in 1987 and continued to record albums



as a leader throughout the 1990s and 2000s, winning multiple Grammy Awards.

Randy Brecker - <http://randybrecker.com>

Randy Brecker was born on November 27, 1945 in the Philadelphia. He chose trumpet after hearing Dizzy Gillespie, Miles Davis and Clifford Brown on his father's records. Brecker attended Indiana University from 1963 to 1966 and later moved to New York and performed with Clarke Terry's Big Bad Band and the Thad Jones Mel Lewis Orchestra. In the early 1970s, Brecker performed live with many artists. By 1975, Randy and Michael formed the Brecker Brothers band and they released six albums. After the Brecker Brothers disbanded in 1982, he toured with Jaco Pastorius and met his wife Elaine Elias.

In 1997, he recorded 'Into the Sun' and won his first Grammy as a solo artist. Many more recordings and tours followed including a reforming of the Brecker Brothers Band.

Miles Davis - <https://www.milesdavis.com>

Born and raised in Illinois, Miles Davis is one of the most iconic musicians in jazz. He began performing in 1940s with saxophonist Charlie Parker before recording the Birth of the Cool sessions. In the early 1950s, he recorded some of the earliest hard bop music before recording influential albums such as, Milestones in 1958 and the biggest selling jazz album of all time, *Kind of Blue* in 1959. In 1963 he formed his second great quintet and recorded *Seven Steps to Heaven*, *E.S.P* and *Miles Smiles* before forecasting the jazz-rock style with *In a Silent Way*. His 1970 record *Bitches Brew* was a commercial success and he continued to perform during the early 70's. After a five-year retirement Davis returned to recording with Tutu and 'The Man with the Horn'. Davis died in 1991.

Charlie Parker - <http://www.cmgww.com/music/parker/home.html>

Charlie Parker was born in 1920. He played baritone horn with the school's band and later switched to alto saxophone. From 1935 to 1939, Parker worked in Kansas City with several local jazz and blues bands. In 1939, he visited New York for the first time, and stayed for nearly a year working as a professional musician, often participating in jam sessions. In 1938, Parker joined the band of pianist Jay McShann, with whom he toured around Southwest Chicago and New York. In 1942, Parker performed in jam sessions at Monroe's and Minton's Playhouse in Harlem and joined Earl Hines for eight months.

During 1945 he led his own group in New York and also worked with Gillespie in several ensembles, touring the West Coast and assuming the mantle as the leader of the be-bop revolution. From 1947 to 1951, Parker worked in a number of nightclubs, radio studios, and other venues performing solo or with the accompaniment of other musicians. March 5, 1955, was Parker's last public engagement at Birdland, a nightclub in New York that was named in his honor. He died a week later in a friend's apartment. He is one of the most innovative musicians in jazz history.

Chick Corea - <http://chickcorea.com>

Chick Corea was born on June 12, 1941 and is one of the major modern piano players in jazz. Many of his compositions are considered jazz standards. His first album as a leader was *Tones for Joan's Bones* in 1966, two years before the release of his album *Now He Sings, Now He Sobs*, with Roy Haynes on drums and Miroslav Vitouš on double bass.<sup>[3]</sup>

He made another sideman appearance with Stan Getz on 1967's *Sweet Rain* (Verve Records).<sup>[3]</sup>

He played with Miles Davis's band in the late 1960s and participated in the birth of the electric jazz fusion movement. In the 1970s he formed Return to Forever and continued to compose and record.<sup>[1]</sup>

From 1968 to 1971 Corea had associations with avant-garde players, and his solo style revealed a dissonant orientation.

In September 1968 Corea joined Davis's band and appeared on albums such as *Filles de Kilimanjaro*, *In a Silent Way*, and *Bitches Brew*. Corea's other bands include the Chick Corea Elektric Band, its traditional jazz trio reduction called Akoustic Band, Origin, and its traditional jazz trio reduction called the New Trio.

Peter Erskine - <https://www.petererskine.com>

Peter Erskine was born in 1954 and is an American jazz drummer and composer. He has recorded and toured with many famous jazz and rock artists, including Steely Dan, Weather Report, Steps Ahead and Kate Bush. Erskine began playing the drums at the age of four. He graduated from the Interlochen Arts Academy in Michigan, then studied percussion at Indiana University.

His professional career started in 1972 when he joined the Stan Kenton Orchestra. After three years with Kenton he joined Maynard Ferguson for two years. In 1978 he joined Weather Report, with Jaco Pastorius in the rhythm section. After four years and five albums with Weather Report and the Jaco Pastorius big band Word of Mouth, he joined the New York based band, Steps Ahead. He has also recorded with Kate Bush's Diana Krall, Eliane Elias, Queen Latifah and Linda Ronstadt, as well as Scottish and Finnish Classical Orchestras, have had Erskine perform as a featured musician. Erskine splits his time as a musician and that of a professor at the Thornton School of Music at the University of Southern California.

John Coltrane - <http://www.johncoltrane.com>

John Coltrane was born in September 23, 1926 in Hamlet, North Carolina. He played clarinet during high school but switched to alto after hearing Lester Young and Johnny Hodges. He studied music in Philadelphia at Granoff Studios and the Ornstein School of Music. He was called to military service during WWII, where he performed in the U.S. Navy Band in Hawaii. After the war, Coltrane began playing tenor saxophone with the Eddie "Clean-Head" Vinson Band.

And later joined the Dizzy Gillespie band and performed with Jimmy Heath and the Miles Davis Quintet in 1958. By 1960 Coltrane had formed his own quartet which included pianist McCoy Tyner, drummer Elvin Jones, and bassist Jimmy Garrison. Coltrane's more influential recordings include *My Favorite Things*, *Africa Brass*, *Impressions*, *Giant Steps*, and his monumental work *A Love Supreme*. John Coltrane died of liver disease in 1967.

## **Appendix B - Information Letter to Participants**

Dear \_\_\_\_\_,

I am a post-graduate student at Edith Cowan University researching the processes and techniques that are employed by musicians when they practise their instrument. The title of my research project is “Practising for jazz performance: An investigation of the processes that underpin optimal instrumental practice in the jazz idiom.” The aim of my project is to research the methods used by advanced performers in the jazz idiom when practising ie: what processes they go through to be able to improvise at a high level. I would be interested in interviewing you as part of the requirements for my degree. This research has ethics approval from the Human Research Ethics Committee at Edith Cowan University.

The interviews will be one source of data and will be analysed in conjunction with the biographies of many jazz musicians and also other research already undertaken in this area. I hope to document a method or modus operandi that establishes key factors in the progression of the improvising musician.

The interviews will comprise approximately 10 questions and also a general discussion about your practice regime, habits and attitudes towards practice and should take no longer than thirty minutes. The interview will be recorded onto a digital recording device for later accuracy in the transcription and the recordings will be kept in a locked cabinet in accordance with ECU research guidelines. Only my supervisor and myself will have access to this information, which will be kept for 5 years after the completion of the project. You may have access to the research results upon completion of the project by contacting either myself or the research ethics officer; below. The names of participants will not be used in the thesis or in any documentation so your contribution will be anonymous. Participation in this project is voluntary and you are free to withdraw from the research at any stage.

Attached, you will find a document that sets out the questions you will be asked and also a consent form. If you are interested in participating in the

project, please read and sign the consent form and return it to me. If you have any concerns or complaints about the research project and wish to talk to somebody, you may contact:

Student researcher: Chris Tarr

Email: [ctarr@ecu.edu.au](mailto:ctarr@ecu.edu.au)

Phone: 9370 6790

Supervisor: Geoff Lowe

Email: [g.lowe@ecu.edu.au](mailto:g.lowe@ecu.edu.au)

Phone: 9370 6939

If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact:

Research Ethics Officer

Edith Cowan University

270 Joondalup Drive

Joondalup WA 6027

Phone: (08) 6304 2170

Email: [research.ethics@ecu.edu.au](mailto:research.ethics@ecu.edu.au)

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Tarr', written in a cursive style.

Chris Tarr

Lecturer in Jazz Studies