

**An investigation into a cohesive method of teaching jazz harmony and improvisation to elective music students in secondary schools using the basic principals of chord-scale theory.**

**Raymond Forster**

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requirements for the degree of  
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**Certificate of Originality**

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been excepted for the award of any other degree or diploma of a university or other institute of higher learning, except where due acknowledgement is made in the text.

(Signed).....

## **Abstract**

This study investigates and suggests a coherent method/curriculum of teaching the basic principals of 'chord-scale theory' to elective music students in high schools with a view of increasing and enhancing their skill and understanding of modern jazz harmony and improvisation. The teaching was delivered as a series of eight lessons to a group of Year 10 elective music students in a school in NSW, Australia. In doing so, the purpose of the study was not only to provide information to the students on the harmonic implications of this theory (chords), but also to suggest improvisational possibilities (scales), and to record their personal or group responses to these lessons. The conclusions reached are the results of questionnaires, class recordings, class and individual participation, the students' general enthusiasm for the subject, and the relevance of the lessons to statements about improvisation in the Music syllabuses of the NSW Board of Studies.

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## Chapter 1: The topic of the study

### Introduction

The NSW Board of Studies music syllabuses expound the need and encourage the teaching of jazz improvisation but suggest no method by which this could be taught. The syllabuses, *Music 7-10*, *Music 1* and *Music 2* (years 11-12), recognise the role that improvisation plays in music and in music education. The *Music 7-10* syllabus states that, “teachers are encouraged to include improvisation as an integral part of teaching programs” (and)...”teachers should consider the musical development of the students and encourage the skill of improvisation at every level”.<sup>1</sup> The *Music 2* syllabus also states that, “improvisation has an important function in music education as a tool for developing knowledge, skills and understanding of a variety of aspects of music. Teachers are encouraged to include it as an integral part of both performance and composition activities”.<sup>2</sup>

The wording in the syllabuses for both *Music 1* and *Music 2* in regard to improvisation is similar and includes a description of what improvisation is and where it may occur in music.

There is also a particular reference to jazz. For example, *Music 1* states that, “there are many types of improvisation. The role it plays varies in different genres, periods and styles of music. In particular, the performance of most contemporary popular music involves improvisation. It may occur in one section of a piece of music or may be the form of production of the entire piece (particularly in jazz). It can occur in solo or group performances. Teachers are encouraged to include improvisation as an integral part of both performance and composition activities”.<sup>3</sup> *Music 2* states that, “improvisation is the simultaneous creation and performance of music, often produced within stylistic parameters in accordance with harmonic, rhythmic, melodic and structural expectations”.<sup>4</sup> The syllabus, *Music 7-10* also states that,

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<sup>1</sup> NSW Board of Studies. Music Years 7-10 Syllabus, p19  
<http://www.boardofstudies.nsw.edu.au> (accessed 14 April 2009).

<sup>2</sup> NSW Board of Studies. Music 2 and Extension, Stage 6 Syllabus,  
<http://www.boardofstudies.nsw.edu.au> (accessed 14 April 2009)

<sup>3</sup> Ibid. Music 1 Stage 6 Syllabus, p26

<sup>4</sup> Ibid. Music 2 and Extension, Stage 6 Syllabuses, p31

“improvisation is the simultaneous creation and performance of music... the improviser draws on known information and seeks to re-order it to produce something different”.<sup>5</sup>

In line with the NSW Board of Studies recommendation that this aspect of music should be taught, this thesis investigates a cohesive method of teaching jazz improvisation and modern jazz harmony to a target group of year 10 elective music students in a school in NSW, Australia.

Chords and scales are related as chords are derived from the scales. The method employed in this study involves a study of this relationship. This method is generally referred to as chord-scale theory. Chord-scale theory refers to the relationship of individual chords or entire chord progressions to key centres or parent scales. The supposition is that this information may then be used either to create a new melody, an improvisation or a composition using this gained knowledge of improvisation and jazz harmony.

This method of teaching improvisation is not new. The first significant recognised published study on this subject was published in 1959 : *The Lydian Chromatic Concept of Tonal Organization for Improvisation* by George Russell,<sup>6</sup>

This study starts at a basic level (the pattern of notes on the Major scale) and deals only with Major chord-scale theory. In his book, *The Jazz Piano Book*, Levine divides scale theory into four parts; Major scale harmony: Melodic minor harmony: Diminished scale harmony: and Whole-tone scale harmony.<sup>7</sup>

The aim of this study is to investigate the effect these lessons had on the students, researching the results and drawing conclusions.

In his book *Thinking in Jazz*, (1994) under the chapter heading ‘Picking Notes out of Thin Air? Improvisation and its Study’, Berliner examines the misconception that jazz

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<sup>5</sup> NSW Board of Studies. Music Years 7-10 Syllabus, p19  
<http://www.boardofstudies.nsw.edu.au> (accessed 14 April 2009).

<sup>6</sup> George Russell, *The Lydian Chromatic Concept of Tonal Organization for Improvisation*. (New York, Concept Publishing Company, 1959)

<sup>7</sup> Mark Levine, *The Jazz Piano Book*. (Petaluma, Sher Music Co, 1989), p59.

improvisation was conceived without reference to the established principals of the melodic, harmonic and structural theory of the day. Berliner maintains that, “contributing further to the mystique surrounding jazz is the transient and unique nature of jazz creations... a general dictionary maintains that to improvise is to compose, or simultaneously compose and perform, on the spur of the moment and without any preparation”.<sup>8</sup> Berliner concludes that ‘without any preparation’ is totally untrue. Against popular belief the early jazz musicians did not just ‘pick notes out of thin air’. To play this music there had to be at least a general and basic theoretical understanding and knowledge of structure, chords, harmonic movement, key centres and melodies.

Whether this knowledge was gained by formal training or internalised by learning to play within the context of an oral tradition is irrelevant. Working by ear, a skilful player could reproduce much of the theory without necessarily being aware of doing so. Martin in his essay *Jazz Theory: An Overview* (1996) states that they, “could pick out chords at the piano, experiment with the effect of various melodies and patterns over them, and later, after the rise of recorded technology, copy solos from records”.<sup>9</sup>

However even for the most talented, a basic understanding of chords and their relationship to key centres or parent scales might help them to play better solos as this lack of detailed knowledge is often reflected in their playing. Martin further maintains that, “at a basic level music theory is pedagogical” which implies accepted formalised theory... “as it deals with the rudiments of music that any musician needs to know in order to produce jazz in any given style. At a higher level it becomes speculative” which implies hypothetical or conjectural opinion... “as it assumes an understanding of the basic rudiments and suggests other methods for the improviser or composer to follow philosophical or aesthetic issues relevant to either written or improvised jazz”.<sup>10</sup>

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<sup>8</sup> Paul F. Berliner, *Thinking in Jazz The Infinite Art of Improvisation* (Chicago and London, The University of Chicago Press 1994), p1

<sup>9</sup> Henry Martin, *Jazz Theory: An Overview*. *Journal of Jazz Studies*, Vol, 3. Spring. (Newark, The State University of New Jersey, 1996), p4.

<sup>10</sup> *Ibid.* p2.

### **Jazz and improvisation**

Jazz as a recognizable art form has existed for a little over a hundred years. It is widely considered to be a mixture of two musical cultures, one using the rhythms that have their roots in Africa, and the other using the melodies and harmonies that are founded on the traditions of Western European music. Martin maintains, “the earliest form of jazz theory was simply the study of European harmony, the formal backbone of jazz.”<sup>11</sup>

Referring to the birth of jazz in New Orleans in the early 1900s, Grammy-Award winning trumpeter and Artistic Director of Jazz at the Lincoln Center, Wynton Marsalis states that, “New Orleans had a great tradition of celebration. Opera, military marching bands, folk music, the blues, different types of church music, ragtime, echoes of traditional African drumming, and all of the dance styles that went with this music could be heard and seen throughout the city. When all of these kinds of music blended into one, jazz was born”.<sup>12</sup>

The article goes on to state that, “improvisation is the most defining feature of jazz. Improvisation is creating, or making up, music as you go along. Jazz musicians play from printed music and they improvise solos. From the collective improvisation of early jazz to the solo improvisation of Louis Armstrong to the free jazz of Albert Ayler, Ornette Coleman, and John Coltrane, improvisation is central to jazz”.<sup>13</sup>

By 1900, at the end of the Romantic period in European music, seventh and ninth chords were used as well as, “chromaticism, chromatic dominants and diminished seventh chords”.<sup>14</sup> As the harmonic logic and structure were already in place, the stage was set (so to speak) for the early jazz players. The music of the day was already based on established harmonic and rationalised principals.

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<sup>11</sup> Henry Martin, *Jazz Theory: An Overview*. Journal of Jazz Studies, Vol, 3. Spring. (Newark, The State University of New Jersey, 1996), p4

<sup>12</sup> *Culture and Change. Black History in America*.

[http://teacher.scholastic.com/activities/bhistory/history\\_of\\_jazz.htm](http://teacher.scholastic.com/activities/bhistory/history_of_jazz.htm) (accessed 18 May 2009) p1.

<sup>13</sup> Ibid. p1

<sup>14</sup> Nettles, B and Graf, R. *The Chord Scale Theory and Jazz Harmony*. (NP. Advance Music. 1997). p9..

The early jazz musicians drew upon this established Western European theory as the basis for their melodies and supporting harmonies. The rhythms were inherited from their own African culture and their solos were improvised. The exception to this use of Western European theory was 'The Blues'.

### **The Blues**

The blues predates jazz and was a major influence in its development and acceptance as the popular music of the day. There is an argument that suggests that if it was not for 'The Blues' there would not be any jazz and therefore no rock or popular music as we know it today.

Martin maintains that, "the more non-functional basis of the blues surely derived from its being closer to its African origins... indeed the tension between the form and harmony of the European tradition and the linear, rhythmic focus of African music was perhaps a key to the foundation of jazz".<sup>15</sup>

The National Association for Music Education states that, "the blues is one of America's greatest musical treasures. A roots music form that evolved out of African-American work songs, field hollers, spirituals, and country string ballads more than a century ago, the blues is the foundation of virtually every major American music form born in the 20th century, including jazz, rhythm and blues, rock and roll, and hip-hop".<sup>16</sup>

The three basic elements of music are rhythm, melody and harmony.

The rhythms of the blues are of African origin and make use of the backbeat (accents on beats 2 and 4). The melody uses altered notes from the major scale (called blues notes) and the basic standard harmonies are built on the three principal chords from the key centre (I, IV and V) and they are usually 4 note dominant 7<sup>th</sup> chords, but not always.

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<sup>15</sup> Ibid, p6

<sup>16</sup> The Blues, National Association for Music Education.

<http://www.pbs.org/theblues/classroom.html> (accessed 6th, march 2009)

The basic traditional 12 bar blues was founded on the African tradition of ‘call and response’ (two repetitive calls of 4 bars each and one response of 4 bars: equals 12 bars).

Each call or musical phrase has a beginning and an ending that fits into the structure of each 4 bars (this is indicated in example 1 below).

Example 1: Two calls; one response

This tradition is often reflected in the lyrics and in the melody of many blues and rock songs, sometimes with slight alterations to the melodic line on the second call.

Example 2: *St. Louis Blues* (1914) by William Christopher Handy

1<sup>st</sup>, call; ‘I hate to see that evening sun go down,

2<sup>nd</sup>, call; I hate to see that evening sun go down,

Response; ‘cause my baby’s gone and gone and left this town’<sup>17</sup>

This traditional idea of ‘call and response’ is common practice in jazz, not only in the body of a solo but also as a ‘tag’ or coda for the ending of many songs. The last 4 bars is often repeated once which acts as the second call and then repeated again with some alterations as an ending or cadence to end the song.

Example 3: *Blue Bossa* by Kenny Dorham (tag or coda; 2 calls and 1 response)

1st, call (last 4 bars of song)

5 2nd, call

7 Response

An understanding of this traditional ‘black folk music’ and its influence on the music of yesterday and today is an integral part of any study of jazz and improvisation.

### Chord-Scale theory

The relationship between chords and scales goes to the very heart of the evolution of harmony, the development of tonal music, the equally tempered scale and the concept of major and minor harmony.

Jazz harmony is an extension of traditional Western harmony. There are many elements of traditional harmony found in jazz, especially parts of functional harmony which identify the function of each chord and their relationship to the key centre as a whole. (by traditional harmony I am referring to ‘tonal music’ or ‘tonal harmony’ which usually refers to the music composed between 1650 and 1900). Over time a variety of methods of analysis have been developed. The traditional classical method

<sup>17</sup> Maxine Sullivan, CD, *Ladys Sing The Blues*. Romance of Jazz, Compact Music GmbH. Luxembourg. 10014.



of analysis differ in one key respect to chord-scale theory in that it does not consider all the possibilities that are associated with a given harmonic structure.

Contemporary analysis or chord-scale theory not only identifies each chords' relationship to the key centre but it also identifies other notes that may be used in an improvisation apart from just the chord notes. It does this by linking the chord to its directly related scale or mode.

A mode is the name given to the scale that is constructed on each degree or note from the parent scale.

Example 4: The modes on the parent scale of C Major

The image displays seven musical staves, each representing a mode of the C Major scale. Each staff is labeled with its mode name and its corresponding chord symbol. The notes are written in treble clef on a five-line staff, with a common time signature. The modes and their corresponding chords are:

- 1 C Ionian = Cmaj7
- 2 D Dorian = Dm7
- 3 E Phrygian = Em7
- 4 F Lydian = Fmaj7
- 5 G Mixolydian = G7
- 6 A Aeolian = Am7
- 7 B Locrian = Bm7b5

In the above example each scale and chord are linked; the II chord Dmin7 and the 2<sup>nd</sup> mode, D Dorian are directly related as the chord is derived from the scale.

In tonal harmony chords are built in thirds and while traditionally triads (3 note chords) were primarily used, contemporary harmony usually refers to seventh chords (4 note chords).

Example 5: Traditional triads constructed on the C major scale

I          ii          iii          IV          V          vi          vii          VIII

Cmaj    Dmin    Emin    Fmaj    Gmaj    Amin    Bdim    Cmaj

Example 6: Contemporary 7<sup>th</sup> or four notes chords on the C major scale

I          II          III          IV          V          VI          VII          VIII

Cmaj7    Dmin7    Emin7    Fmaj7    G7      Amin7    Bmin7b5    Cmaj7

Traditional classical analysis places the position of each chord within the key centre and also indicates major and non-major chords using upper case Roman numerals for major chords and lower case for non-major chords.

In contemporary analysis only upper case Roman numerals are used, “the indicators and additions (maj7, min7, etc.) are the same used for chord symbols... it shows both the quality of the chord and its relationship to a diatonic context”.<sup>18</sup> (and) “at the same time *implies* the upper extensions of the chord (9<sup>th</sup>, 11<sup>th</sup>, 13<sup>th</sup>),”.<sup>19</sup>

Chord symbols are a ‘shorthand’ method of providing complicated information in the most minimal way. The chord Dm7 as the II chord in the key of C major, would automatically suggest to a person who understands this ‘shorthand approach’ the relationship of this chord to its parent scale which is D Dorian. It would also indicate

<sup>18</sup> Nettles, B and Graf, R. *The Chord Scale Theory and Jazz Harmony*. (NP. Advance Music. 1997), p24

<sup>19</sup> Ibid. p25

the possibility that the extensions E, G, and B, (9<sup>th</sup>, 11<sup>th</sup>, 13<sup>th</sup>,) could be added to the chord, either as notes used in the solo, and/or as notes included in the voicing of that particular chord.

Nettles and Graf state that, “Chord Scale Theory describes the interrelation between chords and scales”. Chord-scale theory describes a chord or a chord progression with all its potential tonal possibilities... “chords form a vertical structure of notes, while scales describe a horizontal one... extended chord structures contain all notes of the appropriate scale. If this vertical structure is turned into a horizontal line, the chord becomes the corresponding scale and vice versa”.<sup>20</sup>

#### Example 7: Scale and related chord with extensions

The image shows a musical staff in treble clef. On the left, the notes of the D Dorian scale are written: D, E, F, G, A, B, C. Above the staff, the notes are labeled with their corresponding chord extensions: 2=9, 4=11, 6=13. On the right, the notes of the Dm7 chord with extensions are written: D, F, A, C, E, G. Above the staff, the notes are labeled with their corresponding scale degrees: 13, 11, 9. The title 'D Dorian' is written above the first note, and 'Dm7 (9,11,13)' is written above the last note.

In the above example the scale D Dorian and the chord Dm7 with extensions are directly related. The same is true for all chord-scale relationships.

In his book *The Jazz Piano Book*, (1989) Chapter 9, Introduction: why scales? Levine states that, “the reason jazz musicians think of scales or modes, when they improvise, (is) because it is easier than thinking of chords”.<sup>21</sup>

If a given chord progression defines a passage the question arises that asks what notes apart from chord notes are melodically and stylistically appropriate? One answer is the notes of the extensions. The advantage of placing the extensions in the scales with the chord notes is that they are not only appropriate, but are now more conveniently placed to act as approach notes to chord notes. It is also possible to approach chord notes chromatically. In jazz, approach notes are dynamic and can change at the whim of the improviser while the chord notes are fixed and cannot be altered.

<sup>20</sup> Nettles, B and Graf, R. *The Chord Scale Theory and Jazz Harmony*. (NP. Advance Music. 1997). p16

<sup>21</sup> Mark Levine, *The Jazz Piano Book*. (Petaluma, Sher Music Co, 1989), p59.

Approach notes are flexible and their application is governed by the musical taste of the improviser. However to be able to define a chord as a scale does provide the improviser with immediate melodic possibilities.

### Early jazz and the development of the linear approach to improvisation

Martin states that, “the early improvisation in the jazz styles of the 1920s and 1930s was mainly dependent on arpeggiation as it was diatonically based and rooted in its usages on European harmony. As much of the early jazz was a derivation from ragtime and the marching/dance band repertory, a mainly arpeggiated style was to be expected”.<sup>22</sup>

In example 8 below the reader will notice only two phrases that are linear in style the rest of Armstrong’s solo is in the arpeggiated style.

Example 8: Louis Armstrong’s solo on ‘Muskrat Ramble’<sup>23</sup> (recorded 1926)

By the beginning of the 1950s a more linear approach to jazz improvisation became apparent as some of the younger players like Lester Young, Charlie Parker, Miles Davis and others started to improvise using less arpeggiation and more scalar or linear ideas in their solos.

<sup>22</sup> Henry Martin, *Jazz Theory: An Overview*. Journal of Jazz Studies, Vol, 3. Spring. (Newark, The State University of New Jersey, 1996), p6

<sup>23</sup> Lionel Grigson, *A Louis Armstrong study album*. (Novello and Company Ltd. London, 1992)

Example 9: Cannonball Adderley's alto solo on 'On Green Dolphin St,'<sup>24</sup> (1958)



Carl Fisher maintains in his observations of Adderley's solo, "he also mixes chord Arpeggiation with scalar patterns" (and) "by interspersing sequence, diatonic movement and chromatic movement, Cannonball produces endless melody on even a simple sustained chord".<sup>25</sup>

Tension and release has an important function in music. The chord notes are static or fixed as they must be the true representation of the underlying harmonies. They provide the stable harmonic platform from which the melodic line moves from one chord tone to the next, thus alerting the ear to the harmonic implications within the moving line. Approach notes are non-chord notes, "these notes add tension to the improvised line and when they resolve to an adjacent chord tone, provide the ear with release of tension ... chord tones are stable notes that outline and sound the harmony. Non-chord tones create tension and resolve up or down to the nearest chord tone".<sup>26</sup>

As in example 9 above, these approach notes can be diatonic scale notes or chromatic non-scale notes. Tension and release is a philosophical term used in music to describe in an emotional and intellectual sense a feeling of excitement, stress, anticipation and possibly disorder to a feeling of calm, peace and harmony within the music.

By the mid 1950s material of a pedagogical or theoretical nature began to appear partly in response to this new approach to improvisation.

<sup>24</sup> Carl Fisher, *Solos For Jazz Alto Sax*. (Carl Fisher, Inc. N.Y. 1985) p37

<sup>25</sup> Ibid. p37

<sup>26</sup> Ed Saindon, *Vertical Improvisation: Tension-release Principles*, Down Beat. April, (1999) p78

### **Contemporary linear approach to improvisation**

In 1959 the first significant book on this subject; *The Lydian Chromatic Concept of Tonal Organization for Improvisation* by George Russell,<sup>27</sup> was the first work of theoretical sophistication to tackle this problem. Martins states that, “this landmark volume established the concept of chord-scale theory in jazz compositions and improvisation... this distinctive, and still controversial approach stamped the method as more than pedagogical: it was the first work of speculative jazz theory”.<sup>28</sup>

In 1959 a second important work also appeared based on chord-scale theory. *Jazz Improvisation: Volume 1 Tonal and Rhythmic Principals* by John Mehegan.<sup>29</sup> This book featured a preface by Leonard Bernstein, a well-known composer, conductor and pianist with an interest in jazz. Bernstein recommended its theoretical study. Martin states that, “the Mehegan series codified much of what is now taken for granted in jazz theory”.<sup>30</sup> This book established the use of upper case Roman numerals to analyse chords and chord progressions and their relationship to key centers and parent scales.

In the 1960s and 1970s, works of pedagogical and speculative jazz theory were to expand enormously. Since then there have been many articles, journals, textbooks, essays, play-along recordings and other material based in part or entirely on chord-scale theory.

### **Outline of thesis**

This chapter has explained the basic principals of chord-scale theory; some historical background to jazz improvisation; the Blues and jazz harmony; and syllabus expectations for music students in NSW schools. The second chapter of this thesis explains the application of chord-scale theory to this study. The third chapter details the method used and the time frame of each lesson. The fourth chapter describes how

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<sup>27</sup> George Russell, *The Lydian Chromatic Concept of Tonal Organization for Improvisation*. (New York, Concept Publishing Company, 1959)

<sup>28</sup> Henry Martin, *Jazz Theory: An Overview*. Journal of Jazz Studies, Vol, 3. Spring. (Newark, The State University of New Jersey, 1996), p8

<sup>29</sup> John Mehegan, *Tonal and Rhythmic Principals, Jazz Improvisation 1*. (New York, Watson-Guption, 1959)

<sup>30</sup> Henry Martin, *Jazz Theory: An Overview*. Journal of Jazz Studies, Vol, 3. Spring. (Newark, The State University of New Jersey, 1996), p8

the lessons and class notes-lesson plans were implemented. This is followed by a chapter that reports the results of teaching chord-scale theory to the students. The final chapter discusses the outcomes of the study, and makes recommendations for how they might be used in the teaching of jazz.

## Chapter 2: The application of chord-scale theory to this study

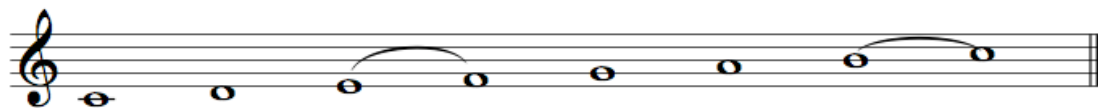
### Introduction

This chapter explains the way the study was designed and the theory applied in the classroom. It details the step-by-step method used and comments on the reasons for the inclusion of each step. It also makes references to the class notes-lesson plans supplied to each student who participated in the study and draws attention to the class recordings.

### Part A 'Introduction To Improvisation' (lesson 1 and 2)

Example 10: C major scale (Appendix I, p2)

The shape or pattern of notes that make the major scale sound major



It is this pattern of whole and half steps that makes the scale sound major. The notes are just the consequence of the pattern. All major scales must follow this same pattern to be major (tone, tone, semi-tone, tone, tone, tone, semi-tone). The reason for making this point is to establish that as the scale follows a pattern then so do the chords that are derived from the scale.

Example 11: C major scale with chords (Appendix 1, p3)

The pattern and type of chords that are constructed on the notes of all major scales

	I	II	III	IV	V	VI	VII	VIII
	Cmaj	Dmin	Emin	Fmaj	Gmaj	Amin	Bdim	Cmaj

The pattern on the major scale is always; major- minor- minor- major- major -minor - diminished and major. Unless playing exclusive by ear it can become important to know what key we are in at any particular time in the course of our improvisation. Songs often change key and go to sub-keys that are related to the mother key or go to key centres that are totally un-related to the key the song is in.



An understanding of this concept starts with the recognition of the pattern of triads built from the Major scale and how these separate chords are related to that one key centre. Because the scale follows a pattern then so too do the chords that are constructed on each note or degree of all major scales. This knowledge can then be used to identify key centres by the analysis of the chord progression thinking Roman numerals. This system allows the improviser to analyse chord progressions and key centres as he plays. Not only does it identify the key centre but also tracks the position and the relationship of each individual chord to each individual key centre.

Example 12: The 4 types of triads (Appendix 1, p4)

Making the four only triads by stacking 3<sup>rds</sup>



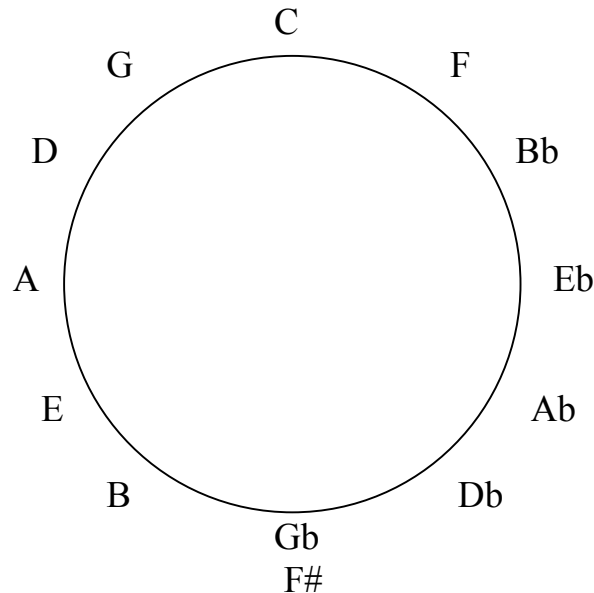
Most scales are built in steps of major and minor 2nds (tones and semi-tones). Chords are constructed (from the scales) in steps of major and minor 3rds. There are two types of 3rds (major and minor). By stacking one on top of the other there are only four possible combinations. However there are several ways to construct these three note chords. One way is to measure each note from the root; so a major triad has a root, a major 3<sup>rd</sup> and a perfect 5<sup>th</sup>. We could also count the notes between each interval (a major 3<sup>rd</sup> has 4 semi-tone steps and a minor 3<sup>rd</sup> has 3). Another way is to simply know which note to move to get from one chord to another and this was the method employed in this study.

There are 4 types of triads and there are 12 keys which equals 48 combinations. Whatever method a student employs to make these chords does not diminish the need to be able to construct them from any note as the theory behind the lessons is based on the relationship of chords to scales.

## Part B: Chord Progressions and the Cycle of 5ths (Lesson 3 and 4)

Example 13: Cycle of 5ths (Appendix 2, p6)

Identifying key centres using and cycle of 5ths.



This natural cycle in the above example moves in a clockwise direction: C goes to F; F goes to Bb; Bb goes to Eb etc. and is very important to this study. As this study is meant to examine the relationship of chords to scales as a means to teach improvisation, the main thrust of lessons 1 and 2 and lesson plan A, was always to establish the idea that all major scales follow a pattern, the chords constructed on all major scales also follow a pattern and chord progressions tend also to follow some kind of pattern and that these patterns are usually linked to the cycle of 5ths.

By using the cycle of 5ths to analyse chord progressions the key centre or parent scale can be identified. This 'common scale' or 'one size fits all approach' can then be used as a starting point for the beginning improviser as the notes of the parent scale can be used to create an improvisation.

Chord progressions are like sign posts that point to key centres, as its not so much the changing melody notes that identify the new key centre but the changing harmonic pattern that supports the melody that alerts the improviser to the new key centre and its implications.

The basic chord progression studied is identified by the numerals I-VI-II-V-I etc, (in the key of C, this equals – Cmaj Amin Dmin Gmaj Cmaj etc,) This chord progression is often referred to as ‘playing around the cycle’.

In this particular chord progression the I chord (C major) moves to its relative minor, the VI chord (A minor). The root movement then follows the cycle back to C through D minor and G major. There are thousands of standard songs that use this basic cycle either in full or in part. However this cycle does not always start on the I chord, and will often start on the II chord, and in some songs on the VI chord with the chords still following the cycle.

Example 14: The Basic Cycle in C (appendix 2, p7)

I      VI      II      V      I  
Cmaj Amin Dmin Gmaj Cmaj etc,

Same cycle but starts on the II chord

II      V      I      VI      II      V      I  
Dmin Gmaj Cmaj Amin Dmin Gmaj Cmaj

Sometimes just      II      V      I      VI  
                                 Dmin Gmaj Cmaj Amin

The majority                      II      V      I  
   Dmin Gmaj Cmaj

And even just                      II      V  
   Dmin Gmaj

Same cycle but starting on the VI chord

VI      II      V      I  
Am    Dm    G7    Cmaj

Regardless of where the cycle starts, all the above chords are a part of the parent scale of C major and so it is possible to use this ‘known information’ to ‘re-order it to produce something different’ (improvise using the notes of the parent scale).

In jazz all these chords would normally be 4 note chords called 7<sup>th</sup> chords.

Example 15: 4 note chords in C (appendix 2, p7)

I	II	III	IV	V	VI	VII	VIII
Cmaj7	Dmin7	Emin7	Fmaj7	G7	Amin7	Bmin7b5	Cmaj7

The V chord (Gmaj) is now G7 (full title) G dominant 7<sup>th</sup>

The VII chord (Bdim) is now B half-diminished or Bmin7b5

There are several ways to construct these chords. One simple way is to mix and match the 4 triads to 2 types of 7ths,

- Two types of 7ths, - Maj7th, (semi-tone below the octave)  
 - Min7th, (whole tone below the octave)

Example 16: The 4 types of triads plus the 2 types of 7ths (appendix 2, p8)

Maj	Min	Dim	Aug	Maj7th	Min7th

Chord Type	Example	Triad	7 <sup>th</sup> ,	Chord Symbols
C Major 7th		Maj	Maj	Cmaj7 - CΔ - CΔ7
C Dominant 7 <sup>th</sup>		Maj	Min	C7 - C9 - C13
C Augmented 7 <sup>th</sup>		Aug	Min	C7#5 - C7aug - C+7
C Minor 7 <sup>th</sup>		Min	Min	Cm7 - C-7 - Cm9

C Half-diminished 7 <sup>th</sup>		Dim	Min	Cm7b5 - CØ
C Minor/Maj7 <sup>th</sup>		Min	Maj	Cm/maj7 - C-/Δ7
C Diminished 7 <sup>th</sup>		Dim	Dim	Co - Co7 - Cdim7
C 7 suspended 4 <sup>th</sup>		no 3rd	Min	C7sus - Bb/c - C711

There are 8 types of 7<sup>th</sup> chords (there are more but these are the most common) and there are 12 keys, this equals 96 combinations. This is only one way of thinking as there are other ways to constructing these chords. Whichever method is used, a comprehensive study of chord-scale theory requires a knowledge of 4 note chords and/or how to construct them.

Moving away from ‘the one scale fits all’ idea to the ‘one scale fits one chord’ idea is a big step. As each individual chord is derived from a scale or mode, then each chord has its own unique relationship to the notes of that scale. (appendix 2, p10, and also covered in the introduction, examples 4 and 7)

### Part C: The Blues (lessons 5 and 6)

Example 17: The basic 12 bar blues structure and chords (appendix 3, p13)



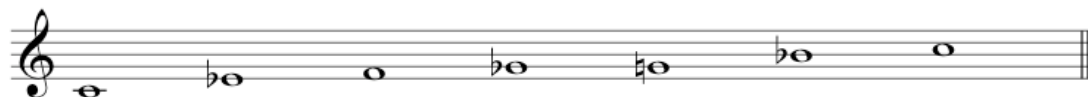
The image shows the first 12 bars of a blues progression in C major, 4/4 time. The notation is as follows:

- Bar 1: C7 chord (C4, E4, G4, Bb4)
- Bar 2: C7 chord (C4, E4, G4, Bb4)
- Bar 3: C7 chord (C4, E4, G4, Bb4)
- Bar 4: C7 chord (C4, E4, G4, Bb4)
- Bar 5: F7 chord (F4, Ab4, C5, Eb5)
- Bar 6: F7 chord (F4, Ab4, C5, Eb5)
- Bar 7: C7 chord (C4, E4, G4, Bb4)
- Bar 8: C7 chord (C4, E4, G4, Bb4)
- Bar 9: G7 chord (G4, Bb4, D5, F5)
- Bar 10: F7 chord (F4, Ab4, C5, Eb5)
- Bar 11: C7 chord (C4, E4, G4, Bb4)
- Bar 12: C7 chord (C4, E4, G4, Bb4)

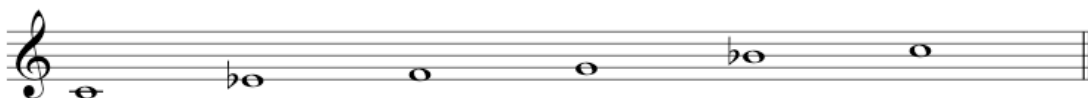
Two ‘common’ scales were used in this study for improvisation purposes; the ‘blues scale’ and the ‘blues pentatonic’. In theory at least, the blues scale and the blues

pentatonic can be regarded as ‘common scales’ that fit over the whole chord progression (one scale fits all idea).

Example 18: The blues scale in C (appendix 3, p13)



Example 19: The blues pentatonic in C (appendix 3, p13)



The basic traditional 12 bar blues was founded on the African tradition of ‘call and response’ (two repetitive calls of 4 bars each and one response of 4 bars: equals 12 bars).

Each call or musical phrase has a beginning and an ending that fits into the structure of each 4 bars (indicated below).

Example 20: Call and response (appendix 3, p14)

Example 21: Class vocal solo using ‘call and response’ with the ‘blues scale’ (appendix 3, p14) and (appendix 20, Tr4 and Tr5; recordings from the lessons).

The image shows three staves of musical notation in 4/4 time. Each staff represents a different chord: C7, F7, and G7. The notes are written in a blues scale style, with flat notes (Bb, Eb, Ab) and a double flat (Cb) for the C7 chord. The first staff starts with a C7 chord and ends with a C7 chord. The second staff starts with an F7 chord and ends with a C7 chord. The third staff starts with a G7 chord and ends with a C7 chord.

As the blues scale has only six notes and the blues pentatonic five, any improvisation is limited and tends to become predictable. In theory all the notes of the C major scale are useable plus the 3 blues notes (in practice any note may be used if it works). In the key of C these missing notes are D,E,A and B. However some notes only work over certain chords and this involves assigning a separate scale to each chord.

Example 22: The three pentatonic scales (appendix 3, p15)

The image shows three staves of musical notation, each representing a pentatonic scale. The first staff is labeled 'C Pentatonic' and shows the notes C, D, E, G, A. The second staff is labeled 'F Pentatonic' and shows the notes F, G, A, C, D. The third staff is labeled 'G Pentatonic' and shows the notes G, A, B, D, E.

Now instead of having only one scale that works over all chords we have three separate scales that match the three separate chords. Add to each scale the 3 blues notes (Eb, Gb and Bb) and we now have an eight note scale for each chord.

Example 23: Re-harmonization of the blues using chord substitutions (appendix 3, p16) and (appendix 20, Tr6, *Bluesette*)

	1	2	3	4	5	6	7	8	9	10	11	12
1	C				F		C		G		C	
2	C7				F7		C7		G7	F7	C7	
3	C7	F7	C7		F7	F#o	C7	A7	D-7	G7	C7	G7
4	C7 C7/E	F7 F#o	C7/G	C7	F7	F#o	C7 F7	E-7 A7	D-7	G7	C7 A7	D-7 G7
5	C7	F7	C7	G-7 C7	F7	F-7 Bb7	C7	Bb7 A7	D-7	G7	C7 A-7	D-7 G7
6	Cmaj7	B-7 E7	A-7 D7	G-7 C7	F 7	F-7 Bb7	EbΔ7	Eb-7Ab7	DbΔ7	D-7 G7	E-7 Eb7	D-7 Db7
7	C#7F#7	B7 E7	A7 D7	G7 C7	F7	F#o	C7 D-7	E-7Eb7	D-7	G7	C7 Eb7	Ab7 G7

The seven harmonic examples above start with the most basic (No1) and end with a quite complicated and complex harmonization of the blues (No7). These are just a few examples, as there are many other ways to re-harmonize the blues using the rules of chord substitutions. The above example was added to create interest in the next set of 2 lessons Part D, chord substitutions.

### Part D: Chord substitutions (lesson 7 and 8)

Below are 6 rules that examine some of these commonly used chord substitutions and their relationship to each other and to key centres.

Example 24: Rule 1, The tri-tone substitution, V7 to I or bII7 to I (appendix 4, p17)

$$\begin{array}{l}
 \text{or} \quad \begin{array}{c}
 \text{V7} \longrightarrow \text{I} = \text{G7} \longrightarrow \text{C} \\
 \text{bII7} \longrightarrow \text{I} = \text{Db7} \longrightarrow \text{C}
 \end{array}
 \end{array}$$

Example 25: Rule 2, A II chord may precede a V chord and a V chord may follow its related II chord provided it is compatible with the style of the music and does not clash with the melody.



Alterations using rule 1 and rule 2 on a V – I progression (appendix 4, p18).

<u>Original</u>	V G7 Dm7		I C C
<u>Altered</u>	Dm7 Dm7 G7 Abm7 Db7 Abm7 Db7	Db7 Abm7 Db7 Dm7 G7 Db7	C C C C C

Example 26: Rule 3, a III chord may replace a I chord in a cycle of 5ths progression (appendix 4, p18)

I	VI	II	V	<b>III</b>	VI	II	V	I
Cmaj7	Am7	Dm7	G7	<b>Em7</b>	Am7	Dm7	G7	Cmaj7

Example 27: Rule 4, The quality of a chord may change to fit the mood or harmonic structure of the song (appendix 4, p19)

I	VI	II	V	<b>III</b>	<b>VI7</b>	II	V	I
Cmaj7	Am7	Dm7	G7	<b>Em7</b>	<b>A7</b>	Dm7	G7	Cmaj7

Example 28: Rule 5, A diminished chord usually functions as a disguised dominant 7<sup>th</sup>, b9 chord (appendix 4, p19)

| Cmaj7 **A7b9** | Dm7 G7 | or | Cmaj7 **C#dim** | Dm7 etc,

Example 29: Rule 6, A IV minor chord can be replaced with its related dominant (appendix 4, p19)

In C	I	VI	II	V	I	I7	IV	IVm	I
	Cmaj7	Am7	Dm7	G7	Cmaj7	C7	Fmaj7	<b>Fm</b> or <b>Bb7</b>	Cmaj7

Using all 6 rules we can radically alter the harmonic structure of most songs.

Here are just a few examples of the possible re-harmonisation of *Heart and Soul* (bottom chord line basic; top line altered).

Example 30: The re-harmonisation of *Heart and Soul* using chord substitutions (appendix 4, p20) and (appendix 20, Tr 1).

Example 30: The re-harmonisation of *Heart and Soul* using chord substitutions (appendix 4, p20) and (appendix 20, Tr 1).

Staff 1:  $B^{\flat 7}/C$ ,  $A^m7/A^m$ ,  $A^{\flat 7}/D^m$ ,  $G^7/G$ ,  $G^7/F$ ,  $E^m7/C$ ,  $A^{7\flat 9}/A^m$ ,  $D^m7/D^m$ ,  $G^7sus/G$ ,  $G^7$

Staff 2:  $C^{maj7}/C$ ,  $G^m7/A^m$ ,  $F^{\#7\#11}/D^m$ ,  $B^{\flat 7\#11}/G$ ,  $C^{maj7}/C$ ,  $E^{\flat 6}/A^m$ ,  $D^7/D^m$ ,  $D^{\flat maj7}/G$

Staff 3:  $C^{maj7}/C$ ,  $A^m7/A^m$ ,  $D^m7/D^m$ ,  $G^7/G$ ,  $B^{\flat 7\#11}/C$ ,  $A^{7\flat 9}/A^m$ ,  $D^m7/D^m$ ,  $G^7sus/G$ ,  $G^7$

Staff 4:  $C^{maj7}/C$ ,  $G^m7/A^m$ ,  $C^7/C$ ,  $F^{maj7}/D^m$ ,  $F^m/mj7/G$ ,  $E^m7/C$ ,  $A^{7\flat 9}/A^m$ ,  $D^m7/D^m$ ,  $G^7sus/G$ ,  $G^7$

Staff 5:  $E^{\flat 6}$ ,  $D^7$ ,  $D^{\flat maj7}$ ,  $C^{maj7}$

Instrumental class participation using just two common scales on the standard song *Blue Bossa* by Kenny Dorham. The reason for the inclusion of this step was to prove to the class that if the key centre is identified the ‘common scale’ approach can be used to create an improvisation. (appendix 20, recordings from the lessons, Tr8)

Example 31: Melody, chords and common scales (appendix 15: *Blue Bossa*, C part)

**Blue Bossa** Kenny Dorham

Chords: Cm<sup>6</sup>, Fm<sup>7</sup>, Dm<sup>7b5</sup>, G<sup>7alt</sup>, Cm<sup>6</sup>, E<sup>b</sup>m<sup>7</sup>, A<sup>b</sup>7, D<sup>b</sup>maj<sup>7</sup>, Dm<sup>7b5</sup>, G<sup>7alt</sup>, Cm<sup>6</sup>, G<sup>7alt</sup>

#### SOLO SCALES

1 C Aeolian Minor 8 bars

1 Db Major Scale 4 bars      C Aeolian 4 bars

### Conclusion

This chapter has detailed the step-by-step approach used to teach chord-scale theory to this select class of music students. It explains the way the study was designed and comments on the reasons for the inclusion of each step. It also made references to the class notes-lesson plans supplied to each student who participated in the study and to the recordings of the lessons.

## **Chapter 3: Methodology**

### **Introduction**

This chapter explains the methodology that was used to conduct this study. First, the type of methodology is described. This is followed by discussion of the class notes-lesson plans supplied to each student and how they were to be used. The series of questionnaires used throughout the study is explained and how the responses were validated and analysed. All lessons were recorded and excerpts from the recordings are presented and conclusions drawn. Details of the student group that undertook the study are given; how the study was timetabled is shown; and the process for gaining ethics approval to conduct the study is noted.

### **Type of methodology**

This study took the form of a series of lessons delivered to a group of school students. Each lesson consisted of:

- A discussion of the topic using the class notes-lesson plans
- A detailed chronological examination of the material presented in these notes
- Five questionnaires, the recordings and comments from the class teacher produced material through which the approach taken could be evaluated

### **The lessons**

This study used a series of eight lessons to teach a set of basic jazz concepts. These were divided into four 'Headings' or 'Parts', with each part or heading covering two classes (one to present the topic and one to review it). Each new topic presented was accompanied by class notes-lesson plans dealing with that particular aspect of the study.

The same generic format is used throughout the study. Each 'Part', including lecture and review, class notes, examples and questionnaires is a lesson that ends with an unanswered question or link leading to the next section (this is both to explain the connection of the subject areas and encourage interest for the pupils in the next section). Each new lecture and notes starts with a relatively simple idea which moves quickly into more complicated theory as the lecture progresses. This approach was

taken to test the overall response of the class and to evaluate their comprehension of the material presented

The majority of the music examples used are played on the piano, but some recorded examples are also used. Where possible the whole class and/or individuals are encouraged to take part in these musical examples either vocally or with their instruments. This study was designed to cover only up to and including the basic rudiments of Major chord-scale theory.

The table below shows the lesson plan and the schedule of questionnaires used in the study.

Schedule A: Lesson plans containing the five questionnaires

<b>Part</b>	<b>Lesson</b>	<b>Content</b>
<b>A</b>	<b>1</b>	Preliminary Questionnaire 1 Class Notes; Part A 'Introduction To Improvisation' Lesson 1 (including played examples, questions and class participation)
	<b>2</b>	Review of lesson 1; Group discussion Section Heading Questionnaire 2 (Part A, lessons 1 and 2)
<b>B</b>	<b>3</b>	Class Notes; Part B 'Chord Progressions and the Cycle of 5ths' Lesson 3 ((including played examples, questions and class participation)
	<b>4</b>	Review of lesson 3; Group discussion Section Heading Questionnaire 3 (Part B, lessons 3 and 4)
<b>C</b>	<b>5</b>	Class Notes; Part C 'The Blues' Lesson 5 (including played examples, questions and class participation)
	<b>6</b>	Review of lesson 5; Group discussion Section Heading Questionnaire 4 (Part C, lessons 5 and 6)
<b>D</b>	<b>7</b>	Class Notes; Part D 'Chord Substitutions' Lesson 7 (including played examples, questions and class participation)
	<b>8</b>	Review of lesson 7; Group discussion Class musical participation using common scales on <i>Blue Bossa</i> (appendices 15, 16, 17) Concluding Questionnaire 5 (comments on whole study)

## Questionnaires

Five questionnaires were used throughout the study. The preliminary questionnaire was administered before the study began. Its purpose was to ascertain and gauge the general theoretical/musical knowledge of the class before the lessons commenced (Appendix 5). This was balanced by the concluding questionnaire at the end of the study (appendix 9). Its dual purpose was not only to evaluate the gained knowledge by a comparison with the preliminary questionnaire but also to elicit and record the students' opinions of the study.

Between these two questionnaires were three section heading questionnaires delivered at the end of lessons 2, 4 and 6. Each of these were designed and used to track the general comprehension of the class up to the end of each set of two lessons. These questionnaires individually concentrated on the comprehension by students of the theoretical aspect of each Part (Appendix 6, 7, 8).

How the five questionnaires were timed across the study and their purpose are shown in the following table.

Schedule B: Timing and purpose of questionnaires

Questionnaire	When used	Purpose
1	Before lessons began	To assess the general theoretical knowledge of the students pre-lectures.
2	After lesson #2 (end of Part A)	To assess what knowledge the students had gained from Part A.
3	After lesson # 4 (end of Part B)	To assess what knowledge the students had gained from Part B.
4	After lesson No# 6 (end of Part C)	To assess what knowledge the students had gained from Part C.
5	After lessons concluded	To evaluate the gained knowledge as a comparison with the 'Preliminary Questionnaire', and also to evaluate and record the students' own assessment of this study as a whole.

**Class recordings: (appendix 20, Recordings from the lessons)**

All eight lessons were audio recorded for the purpose of sampling comprehension, enthusiasm, musical examples and class participation.

**Students**

The lessons were delivered to a group of 14, year 10 co-educational students, in a elective music class in a private school in Sydney. NSW. All played instruments, and most of the students had a classical music background. All expressed an interest in jazz, but most of them preferred classical music.

**Timetabling of the study**

The study was divided into eight fifty minute lessons spread over a little more than two school terms, resulting in a time span of approximately twenty four weeks.

**Ethical considerations**

Permission to conduct this study was required both from the University of Sydney and from the school concerned. University approval for this was granted in March 2009 (Ref# 03-2009/11484) (see Appendix 10). Permission was requested from the school concerned through liaison with music staff concerned with the study. This was granted in January 2009 (see Appendix 11).

**Analysing the material from the questionnaires**

The percentage of correct answers to incorrect or unanswered questions was recorded. This was conducted at the end of each second class.

**Conclusion**

This chapter has explained the methodology used to conduct this study. It has described the general approach taken, how the program of lessons was constructed, what the lessons contained, how students were regularly assessed by a set of questionnaires, and how the material produced was analysed. The following chapter explains what happened as the study was implemented and what the students in it indicated about their understandings of jazz as the lessons proceeded.

## Chapter 4: Implementation

### Introduction

This chapter explains how the lesson plans were implemented and how the lessons were structured and delivered to maximise the students' comprehension. The way this chapter presents its content is in the form of a curriculum. It lists content, is sequential, and provides a way of assessing what students understood.

### Part A: Introduction to improvisation (lessons 1 and 2) Appendix 1

The purpose of this Part was to explain to the students what the study was about; to define improvisation; to explain what syllabus documents say about improvisation; and to teach specific theoretical knowledge. The topic areas of this Part can be listed as follows:

- The purpose of the study
- The NSW Board of Studies view of improvisation and its perceived importance in music education.
- The Board's definition that 'the improviser draws on known information and seeks to re-order it to produce something different' is to be used as a reference throughout the lessons.
- Structure and key centres; piano and recorded example: '*A Night In Tunisia*'.
- The theory behind chord-scale theory and how it works.
- The pattern of tones and semi-tones that make the major scale sound major.
- The pattern, type and relationship of each triad to the parent scale or key centre using Roman numerals.
- The four only types of triads and a simple and effective way of making any of the 48 combinations by stacking 3<sup>rds</sup>
- The I-VI-II-V-I chord progression as a pattern
- The importance of the cycle of 5<sup>ths</sup> in the analysis of key centres

### The lesson

Lesson one started with the preliminary questionnaire (Appendix 5) and then the attention of the class was drawn to the NSW Board of Studies syllabus documents on improvisation and the board's definition.



This was followed by the song *A Night In Tunisia* played on the piano with the chords, structure and the musical terms needed to follow the music written on the white board. A short explanation of what was to happen was delivered to the class before the song was played. This explanation concentrated on structure, rhythm (Afro/Cuban to Swing) and key centres.

A recorded version of *A Night in Tunisia*, by Art Blakey and The Jazz Messengers (appendix 19) was then played during which I pointed out the structure on the white board and commenting on the key centres as they were played by the soloists.

Next followed an explanation as to how the lessons would be run and how chord-scale theory would be used and applied in the study.

The rest of this lesson followed the class notes-lesson plan with played examples on the piano, examples on the white board and class participation in the form of questions and answers. Each aspect of the specific theory was examined step-by-step and in detail.

The standard songs *Heart and Soul* and *Blue Moon* (A section) were demonstrated on the piano using the basic I-VI-II-V-I progression with a short solo using the 'common scale' idea in C major.

The lesson finished with two short renditions of *Heart and Soul* played on the piano. The first used the basic I-VI-II-V-I chord structure and the second used an altered chord structure to support the melody (chord substitutions). In the second rendition I also changed the feel/rhythm and played a short improvisation on the altered chords to demonstrate that an understanding of the theory behind the music allows me to be able to do this. This was also used to create interest in the next lessons.

## **Lesson 2:**

This lesson was used as a review of lesson 1: Part A,

It started with the shape or pattern of the major scale, again making the point that it is the pattern that makes the scale sound major. I was also able to ask a lot more

questions and found that the theory from Part A, covered (up to a point) material that the class already had some understanding and knowledge of.

This was

- The major scale and its pattern of triads
- Structure
- Rhythm
- Fundamental information about the cycle of 5ths

Sometime was spent on re-examining how to make the 4 types of triads as this study is meant to examine the relationship of chords to scales as a means to teach improvisation.

The main thrust of Part A was always to establish the idea that all major scales follow a pattern, the chords constructed on all major scales also follow a pattern and chord progressions tend also to follow some kind of pattern and that these patterns are usually linked to the cycle of 5ths.

Towards the end of the lesson '*Heart and Soul*' was again played to demonstrate that there are many ways to play and harmonise the same song (appendix 20: Tr 1) This is an important theme throughout the whole study as it becomes clear that I am able to do this because I understand the theory behind the playing.

This lesson concluded with section heading questionnaire 2 (appendix 6).

### **Part B: Chord progressions and the cycle of 5ths (lesson 3 and 4) Appendix 2**

The purposes of this Part were to expand on the concept that if the key centre/scale can be identified then the notes of that scale can then be used to make up an improvisation; to teach the specific theoretical knowledge needed to identify key centres that do not start on the Tonic chord; the role the cycle of 5<sup>th</sup> plays in analysing progressions that start on other parts of the cycle; to present an effective way of making any one of the most common eight types of 4 note chords; the common scale or the 'one scale fits all idea' for the beginner improviser; and the modes of the Major scale and their related chords (one scale fits one chord idea).

The topic areas of this Part can be listed as follows:

- The relationship of the I VI II V I chord progression to the cycle of 5ths
- The importance of the cycle of 5ths in the analysis and recognition of key centres
- Understanding that the basic I VI II V I chord progression can start anywhere in the cycle
- 4 note chords, their construction and chord symbols
- The modes of the Major scale and their relationship to the chords
- The ‘one scale fits all’ or common scale approach as a starting point for beginning improvisers.
- Using the chords extensions (9, 11, and 13) as approach notes to chord notes by placing them in the appropriate scale with the chord notes
- The principle of ‘tension and release’ when using approach notes

### **The lesson**

Lesson four started with a short review highlighting the main points of Part A (several weeks had passed since the last lesson). The remainder of the lesson then followed the lesson plan.

The cycle of 5<sup>th</sup>s relationship to the cycle of the I-VI-II-V-I chord progression and its permutations were discussed in detail on the white board and played on the piano (appendix 2, p7). The songs used for this demonstration were *Heart and Soul* and *Blue Moon* which both start on the I chord and follow the cycle. The bridge of *Blue Moon* starts on the II chord and then follows the cycle to a key change, which then follows its own cycle. The bridge of *Blue Moon* was used to expand on the ‘one scale fits all’ idea using the notes of C major over the first 4 bars and the notes of E flat major over bars 5 and 6.

Other examples were also played and explained on the white board to identify key centres. *All the Things You Are* and *Fly Me to the Moon* both start on the VI chord. *Satin Doll* was used to identify key centres as it has a succession of II-V (only) on the A section. The tri-tone, Abmin7 to Db7 on bar 6 of *Satin Doll* was alluded to only and left for lecture 7, Part D: (Chord Substitutions) and a II-V-I on the first 4 bars of the bridge or B section was also discussed.

The majority of students were able to successfully identify the key centre provided they were told the number of the first chord. This was done in several keys but mainly in C and E flat as the bridge of *Blue Moon* modulates to E flat in the latter half of the bridge if played in C major.

A method of making 4 note chords and their common symbols was then presented to the class (appendix 2, p7 and p8).

A list of the modes and their related chords were explained and a short demonstration played on the piano (appendix 2, p 9).

Next came an explanation of the 'one scale fits one chord' idea using the D Dorian scale over a D minor 7<sup>th</sup> chord with the extensions 9<sup>th</sup>, 11<sup>th</sup> and 13<sup>th</sup> (the class was able to name the notes of these extensions); how the chord was related to the scale and how the extensions could be used as approach notes (also known as guide tones) to chord notes. The A section of the song *So What* by Miles Davis was used for the piano demonstration (solo only), using both scale and chromatic approach notes (appendix 2, p10 and appendix 20, Tr3).

A short explanation on the principals of 'tension and release' was given in regard to approach notes and how when they resolve to an adjacent chord tones, provide the ear with a release of tension. These approach notes can be either scale notes or chromatic notes.

The lesson concluded with the presentation of 2 common scales to be used at a future lesson for the song *Blue Bossa* (appendix 2, p11)

#### **Lesson 4:**

This lesson was used as a review of lesson 3: Part B and followed the lesson plan. The material from lesson 3 was examined in detail and more time was allotted to questions and played examples.

It again reiterated

- The cycle of 5<sup>ths</sup>, relationship to the cycle of the I-VI-II-V-I chord progression and its permutations in the recognition of key centres or parent scales

- Using this ‘known information’ as a starting point to construct an improvisation by thinking one common scale
- Eight types of 4 note chords and an effective way to construct any of the 96 combinations (8 chord types; 12 keys = 96)
- The link between the 7 major modes and the 7 diatonic 4 note chords built on the major scale
- How to use this ‘known information’ to more easily find the extensions to chords (9, 11 and 13) as possible approach notes to chord notes when improvising
- A brief word description and piano demonstration of the concept of tension and release as it relates to approach notes and chord notes

I found that the class had little prior knowledge of this theory before lesson three but in this lesson a large number of students were able to answer most of my questions regarding this theory.

A large amount of time was spent on explaining how to make 4 note chords and what the chord symbols mean, as the remaining lessons will be dealing with 4 note chords.

Because of the limited time, these two classes were theory intensive and covered a lot of theory in a short period of time and as such there was less class participation than in Part A.

This lesson concluded with section heading questionnaire 3 (appendix 7).

### **Part C: The Blues (Lesson 5 and 6) appendix 3**

The purpose of this Part was to highlight the historical influence and importance of ‘The Blues’ on 20<sup>th</sup> century American music (not only jazz, but rock and popular music generally). In doing so we examine its structure; the concept of ‘call and response’; the blues scale as a common scale; the use of Pentatonic scales; and finally some other possible harmonic alterations and their implications. It also allowed the class as a whole to participate musically in singing the blues, either individually or with their instruments.

The topic areas of this Part can be listed as follows:

- The importance of the blues in the study of improvisation and in the development of jazz and 20<sup>th</sup> century American music
- The basic 12 bar structure using 4 note dominant 7<sup>th</sup> chords constructed on the 1<sup>st</sup> 4<sup>th</sup> and 5<sup>th</sup> notes of the key centre
- The ‘one scale fits all’ approach using the blues scale and the blues Pentatonic
- The blues and the African tradition of ‘call and response’
- Class vocal and instrumental participation using ‘call and response’ and the blues scale
- The use of Pentatonic scales plus blues notes over individual chords so as to utilize the 4 notes from the major scale that are missing in the blues scale
- Re-harmonisation of the blues using 7 examples from basic to very complex

### **The lesson**

Lesson 5 followed the format of the lesson plan. It started with some historical background to the Blues and its importance to 20<sup>th</sup> century American music. I was able to include more class participation in this lesson as this class was more aurally based rather than just theoretical. I found the class generally, had some knowledge of the structure, basic chord progressions and the blues scale.

The basic 12 bar structure using 4 note dominant 7<sup>th</sup> chords were written on the board as was the blues scale. I then played a simple example using the structure and the blues scale and blues Pentatonic as a theoretical starting point.

Next came an explanation of the 3 scale notes and the 3 blues notes used in the blues scale, their limitations and the concept of the ‘one scale fits all’ approach over the whole chord progression.

Next came an explanation of the African tradition of ‘call and response’ in some detail, (appendix 3, p14) on the board and with 3 recorded examples: *St Louis Blues* by Maxine Sullivan, *CC Rider* by Jerry Lee Louis and *CC Rider* by The Gean Harris Quartet (Appendix 19)

The class as a whole was then invited to participate vocally using a simple blues line based on the blues scale played backwards (to further reinforce the concept of call and response) (appendix 3, p14). Individual students were then asked to volunteer to vocally improvise a solo on the blues using the same basic idea of call and response (appendix 20, Tr4). A student instrumentalist then played a solo using the original idea and improvisation on the melody (appendix 20, Tr5).

The next part of this class was devoted to the “one scale fits one chord” idea. On the board and the piano I demonstrated how to find and use the 4 notes from the major scale that are missing in the blues scale. I did this by using a separate Pentatonic scale plus the three blues notes over each individual chords. Although most of the students indicated that they knew what Pentatonic scales were, only 3 out of the 12 were able to name the 3 scales that matched the 3 chords.

The classes on the blues served as a relaxing bridge between the theory intensive Part B and Part D, as it again articulated some known information and also gave the class a chance to participate musically.

The re-harmonisation of the blues (appendix 3, p16) was moved to lesson 6

### **Lesson 6:**

This lesson was used as a review of lesson 5: Part C and followed the lesson plan. The material from lesson 5 was examined in detail with less time spent on class musical participation. It also included the re-harmonisation of the blues (missed in lesson 5). Some time was spent on examining the 7 harmonic examples presented in the lesson plan (appendix 3, p16). These examples ranged from basic to complex.

I then played and explained some of the basic theory behind these alterations, concentrating mainly on example 6: *Bluesette* by Toots Thieleman (appendix 20, Tr6).

There was more time allotted to questions and played examples in this lesson.

The seven examples of the re-harmonised blues are meant not only as a demonstration of re-ordering information but also as a link to the next heading Part D, 'Chord Substitutions'.

Part C finished with the 3<sup>rd</sup> Section Heading Questionnaire.

#### **Part D: Chord substitutions (lesson 7 and 8) appendix 4**

The purpose of this Part was to introduce and explain the theory regarding re-harmonisation of jazz and popular songs. In doing so we examined: six rules regarding chord substitution; where and how they might be used; the rationale behind each rule; and their implications for student compositions. The focus of this Part can be listed as follows:

- The common practice among jazz musicians of re-harmonising melodies
- The possible benefits of this information for student compositions
- Six basic and commonly used rules for re-harmonisation
- The tri-tone substitution
- Placing a II chord in front of a V chord
- Replacing a I chord with a III chord in a cycle of 5ths progression
- Changing the quality of a chord to fit the mood or harmonic structure of a song
- A diminished chord as a substitute for a Dominant 7<sup>th</sup> b9 chord; or as a chromatic passing chord; and/or the irregular diminished 7<sup>th</sup>
- Substituting a bVII dominant 7<sup>th</sup> chord for a IV minor/major 7th chord
- A restatement of *Heart and Soul* with altered harmonies using the 6 rules of chord substitutions

#### **The lesson**

Lesson 7 followed the format of the lesson plan. This lesson was theory intensive with little time for student involvement except for questions and answers. All 6 rules were presented in detail and piano example played for each one. There were a number of questions from the class as to the rationale behind each rule. This took up most of the lesson.



The songs *Blue Moon*, *Satin Doll* (for the tri-tone) and the bridge of *Moonlight in Vermont* for rule 2 and rule 3 were used to again explain how these chord substitutions might be used.

The notated example (appendix 4, p20) of *Heart and Soul* with altered harmonies was discussed in detail with references to the six rules and how and why they worked in this particular example.

The music with solo scales of *Blue Bossa* by Kenny Dorham was handed out to the class (C part, Bb part and Eb part, appendix 15, 16 and 17) and a recorded version was played to the class (The Gene Harris Quartet (appendix 19). I also explained the two common scales that could be used to play an improvisation over the song and then gave a short demonstration of the melody and how these scales could be used (appendix 20, Tr7)

### **Lesson 8:**

This lesson was used as a review of lesson 7, Part D: and followed the lesson plan. The material from lesson 7 was examined in detail and more time was allotted to questions and played examples with some individual student musical participation at the very end of the lesson.

This class had 11 students and were generally very responsive to the subject and asked a lot of questions (albeit that the same students' asked most of the them).

I again drew their attention to the class notes-lesson plans and their possible use for their own compositions and was able to briefly reintroduce the two common scales and their function for improvising over the jazz standard *Blue Bossa* (appendix 15, 16 and 17).

Finally because of time constraints, I was only able to get one student to play a solo on *Blue Bossa*, although several voiced their frustration at not being able to play (appendix 20 Tr8).

This was the eighth and final lesson and this class finished with the concluding questionnaire.

### **Conclusion**

This chapter has outlined the content of the lessons given to the students in this project. For each Part of the program reasons for content were given and comments on students' reactions were indicated. Detailed lesson notes-lesson plans were provided to show the material students were covering. The following chapter shows the results and the student reactions to the lessons.

## **Chapter 5: Results and Student Reactions**

### **Introduction**

This chapter presents the results of the questionnaires and the students' reaction to the study. It is based on 4 sets of information:

1. The questionnaires
2. Recordings of the lessons
3. Student involvement and enthusiasm for the subject
4. My own and the class teacher's observations of the lessons

### **The questionnaires**

The questionnaires were used as a way to track and evaluate the students' overall understanding of the theory presented to them over the course of the study, their order, when they were used, and their purpose, were explained in Chapter 3 (Methodology). The results of each questionnaire (there are 5 in all) are expressed as a percentage of correct answers to incorrect or unanswered questions.

- Preliminary questionnaire: appendix 5
- Section Heading Questionnaire Part A: appendix 6
- Section Heading Questionnaire Part B: appendix 7
- Section Heading Questionnaire Part C: appendix 8
- Concluding Questionnaire: appendix 9 (also in the body of the essay p46)

### **Preliminary questionnaire: appendix 5**

(12 students)

This questionnaire asked general questions pertaining to the study as a whole. These are listed as follows:

- Understanding that solos follow structure and chord progressions
- The cycle of 5ths and its order
- Naming the four types of triads
- Naming and constructing 4 note chords
- Understanding that songs move to other key centres
- Finding the key centre for II-V chord progression Dmi7 – G7

- Naming the other notes (apart from the notes of the blues scale) that could also be used to improvise over a simple 3 chord blues in C
- The use of chord substitutions to re-harmonise chord progressions
- The tri-tone substitution

In response to the Preliminary Questionnaire, 66.6% of students indicated that they knew something about the cycle of 5ths but only 50% could name the order of the cycle.

In relation to chords: 58.3% said they could name the four types of triads but only 41.6% said that they could construct them. Only 25% were able to name the notes of a C augmented chord and only 25% of students were able to name the notes of the 4 note chords Cmaj7, C7 and Cmin7.

50% of students were able to identify the key centre of the II-V chord progression in C (Dmin7- G7) and 0% could name the tri-tone substitution for the V chord G7 (Db7).

Their knowledge was not only limited but was also inhibited in not understanding how the pieces of this theoretical jigsaw fitted together. Chords and scales are related and an important part of any study on improvisation is to explain how all these scraps of knowledge are related and fit together.

### **Section Heading Questionnaire Part A. (appendix 6)**

(11 students)

This questionnaire asked questions directly related to Part A of the study. These are listed as follows:

- Understanding that solos follow both structure and chord progressions
- Understanding the ‘signposts’ of the music (A, B, C, D, coda, sign etc.)
- Following a solo through each part of the music
- Naming the sequence of triads on the major scales
- A method to construct any triad from any note

This questionnaire showed that a high percentage of students' understood the material and the information presented in the lessons of Part A of this study. 90.9% maintained that they could follow the solo of the recorded version *Night in Tunisia* (which I had pointed out on the board as the solos progressed).

100% of students maintained that they understood the 'signposts' needed to follow the music and 83.6% were able to name the chords built on the major scale. 90.9% maintained that they understood the method I used to construct the four types of triads and 5 of 6 in their comments wanted more information on modes, minor scales, cycle of 5<sup>th</sup> and naming chords (most of which was to be covered in the next lectures). One student said 'A bit too much repetition'.

### **Section Heading Questionnaire Part B (appendix 7)**

(12 students)

This questionnaire asked questions directly related to Part B of the study. These are listed as follows:

- The cycle of 5ths relationship to chord progressions
- Finding the key centre by the analysis of the I-VI-II-V-I chord progression as belonging to a particular key
- Recognition of the key centre when the chords start on a different part of the cycle
- Naming 4 note chords
- Understanding how to make 4 note chords

This questionnaire showed that a slightly lower percentage of students' understood the material and the information presented in the lessons of Part B of this study.

Part A of this study dealt with material that the students had some prior knowledge of. However, Part B was mainly new information and dealt with material that the students had little or no previous knowledge of.

100% of students maintained that they understood the general principle of the cycle of 5ths relationship to chord progressions but only 58.3% could name the chords in a I-VI-II-V-I chord progression in C. Only 33.3% were able to identify the chords or

follow the cycle when the chords starting on the II chord in C. When asked if they understood how to make 4 note chords, 91.6% said they did but only 16.6% were able to name the 4 note chords built on the major scale of C.

### **Section Heading Questionnaire Part C (appendix 8)**

(12 students)

This questionnaire asked questions directly related to Part C of the study. These are listed as follows:

- Naming the chords and bar numbers of the three chords of a 12 bar blues in C
- Naming the notes of the C blues scale
- Naming the 3 blues notes and the 3 major scale notes from the C blues scale
- How to find and use the 4 notes from the major scale that are missing in the blues scale
- Naming the notes of C Pentatonic

This questionnaire showed that a reasonably high percentage of students' understood the material and the information presented in the lessons of Part C of this study. 83.3% of students were able to name the 3 chords used on a blues in C but only 58.3% were able to successfully name the bar numbers of where these chord fell.

A 100% of students were able to name the notes of the blues scale in C but only 75% were able to name the 3 blues notes and only 58.3% were able to name the 3 scale notes.

Only 25% of the class were able to name the 3 Pentatonic scales that could be used in conjunction with the 3 blues notes over each chord but 66.6% were able to name the notes of C Pentatonic.

It is a big jump from the 'one scale fits all' (the blues scale) to the 'one scale fits only one chord' idea (Pentatonic scales and blues notes). However the results indicate that the majority of the class understood most, or at least the main points of the basic theory presented.

### Concluding Questionnaire (appendix 9)

(11 students)

This began with four questions regarding the students' own musical studies, their interest in jazz, their assessment of the study as a whole and the usefulness of the class notes-lesson plans. The remaining questions pertain to the students' interest in the various aspects of this study and their general comprehension of the theory presented. It also gave a good indication of the scope of the study and the students understanding of it. For this reason I will include this questionnaire and the results in the main body of this essay.

- Is your main study in classical music? YES 63.6%
- Are you interested in jazz and/or improvisation? YES 81.8%
- Over all has this study been beneficial? YES 90.9%
- Will you be able to use the class notes? YES 100%

The next questions asked students to indicate which part of this study they found the most informative and/or useful. Their responses were:

#### Part A

- The structure of songs 45.4%
- Following solos 26.3%
- Making 3 note chords. 45.4%
- The common I, VI, II, V, I, cycle chord progression. 54.1%

#### Part B

- Using the cycle of 5ths to find the key centre or parent scale 54.1%
- Using this common scale to create an improvisation 26.3%
- How to make 4 note chords 26.3%
- Chord symbols 54.1%
- The relationship of the chords to the modes on the major scale 72.7%
- Chord notes and approach notes for improvisation 54.1%

#### Part C

- The basic 12 bar blues structure and chords 36.3%
- The 'one scale fits all' idea over the whole blues progression 54.1%

- Using ‘call and response’ to develop a solo 36.3%
- Thinking Pentatonic scales and blues notes for each chord 45.4%
- Re-harmonising the blues 72.7%

#### Part D

- Using the tri-tone substitution 72.7%
- Placing a II chord in front of a V chord 45.4%
- Substituting a III chord for a I chord in a cycle 72.7%
- Altering the quality of a chord to fit the melody 36.3%
- Replacing a V7b9 chord with a diminished chord 63.6%
- Replacing a IV minor chord with a bVII dominant 63.6%

At the end of the Concluding Questionnaire, students were asked to comment on the lessons. However, this class ran well overtime and only one student commented on the study. This student wrote, “these lessons have been interesting and informative”.

#### **My observations**

I found it interesting and unexpected that Part D (chord substitutions) was perceived as the most interesting and informative of all the lessons. In fact all the information pertaining to harmonisation received a good score including re-harmonising the blues Part C, 72.7% and the relationship of the chords to the modes on the major scale from Part B, also 72.7%.

This theory can be complicated and is generally complex and was delivered in a short period of time (just two lessons). 72.7% of students thought that the tri-tone substitution was important information while no-one in the Preliminary questionnaire knew anything about it.

This final questionnaire did not ask specific theory question but rather the students’ opinion of the various aspects of the study and what was important for them. Although 63.6% declared their main interest was in classical music, 81.8% also declared an interest in jazz an improvisation. 90.9% thought the study was beneficial and 100% said they would be able to use the class notes-lesson plans.



### **Recordings of the lessons (appendix 20)**

As all eight lessons were audio recorded for the purpose of assessing comprehension, enthusiasm, musical examples and class participation, there are over six and a half hours of recordings. From this I have extracted 8 tracks as examples from the eight lessons covering the main musical points that pertain to the study as a whole.

- Track 1: *Heart and Soul*, with unaltered and altered harmonies: lesson 1 and 2 (this was an important example as it explains where the study was heading)
- Track 2: *Satin Doll*, understanding key centres: lesson 3 (the whole class took part in this and successfully named all the key centres in this song)
- Track 3: D Dorian, chord notes and approach notes: lesson 4
- Track 4: Class and solo vocals using ‘call and response’ on The Blues: lesson 5
- Track 5: Individual instrumental solo on the Blues: lesson 5
- Track 6: *Bluesette*, altered harmonies on the Blues: lesson 6 (this example prompted several questions on altered harmonies)
- Track 7: *Blue Bossa*, an explanation of the two common scales for the purpose of improvising: lesson 7
- Track 8: *Blue Bossa*, student solo using the two common scales: lesson 8

These recordings demonstrate:

- The students’ enthusiasm and willingness to participate in the lessons
- Feedback from students of a general nature concerning their own understanding of the study
- Responses to specific questions on the theory being presented at the time
- Their willingness to participate musically in the lessons

### **Questions to the class and responses**

- To the question “what do you know about improvisation and have you studied it at all?” the main responses were “nothing, not much, no and not really.”
- Similarly the question “we have run out of time, do you want to go home?” received “we want to hear the rest of the lesson.”
- Suggesting the curtailment of individual musical participation on the Blues, several responded with “but it’s my turn” and “I want to do it too.”

- When asked to name the cycle of 5ths most students were able to do so.
- When asked to play an improvisation on the song *Blue Bossa* using two common scales, only one student was able to do so as this class run out of time, but several students voiced their frustration at not being able to do so.

The majority of the students who took part in this study showed considerable interest in this topic, although some more so than others. I reach this conclusion because of their questions, attention to the lessons, willingness to participate and their responses in the questionnaires.

### **My own and the class teacher's observations of the lessons**

Not every class had the same class teacher. The main teacher who attended most of the lessons commented that “the review of each lesson was an important aspect in the success of the study”. Another teacher in lesson 3 asked more questions than the students did. Overall the teachers' comments were positive. This study presented a lot of information in a relatively short period of time and nearly every class ran over time.

Lesson 5 was conducted on the last lesson on a Friday afternoon and ran overtime. However, the class unanimously elected to stay back after the final bell at the end of the school week to hear the final 15 minutes or so of the lesson. This seems a strong indicator of their involvement and interest in the subject.

### **Conclusion**

This chapter has outlined the students' reaction to the study. It has examined the results of the questionnaires that show that much of the theory was understood and it presents extracts from the class recordings and contains observations of the students' involvement. The following chapter summarises the study and makes recommendations about the teaching of improvisation and jazz harmony in schools.

## **Chapter 6: Conclusion**

### **Introduction**

This chapter makes observations on chord-scale theory and presents a method to teach it. It comments on the learning outcomes these lessons produced on the target group of student and it analyses the results of the study and draws conclusions.

### **Comments on chord-scale theory**

The theory alone can never replace natural ability, personal expression, skill in performance, stylistic tradition, or the oral/aural manifestation of musical thought into musical creation; the ability to recreate the music in ones mind into a musical reality.

However, this theory does provide the improviser and/or composer with ‘information’ that can be ‘re-ordered’ and it was always meant as a starting point for those who wish to learn more.

As the class notes-lesson plans were written in the form of a curriculum they were important to the study and possibly to any future study that students may contemplate.

### **The questions from the introduction**

The aim of this study was to investigate the outcomes these lessons had on the students, researching the results and drawing conclusions.

What I did find out is that this subject is not generally taught in this particular school as a cohesive subject despite the fact that all the syllabuses for Music in Schools refer to the need for improvisation to be taught. Some aspects of jazz harmony and improvisation are taught, but these are not integrated into a general approach for students who might benefit from this knowledge. The theory itself is embedded in all modern music that uses improvisation and should at least be available to those students who wish to improvise or use modern harmonic ideas for their compositions.

The enthusiasm of the class for this information, the overall results and feedback from those who took part, comments from the class teachers, and the results of the questionnaires lead me to believe that this information should be included in Music

subjects in NSW schools as the majority of students considered that these classes were not only informative and interesting but the information gained, plus the class notes, were both useful and useable.

Chord-scale theory can be viewed as having two components: improvisation (scales) and harmony (chords). As most of the students had a classical music background I thought it important to include the 'harmonic component' (Chord Substitutions, Part D), believing that this information would be of particular interest to those students who were less likely to improvise but more likely to compose. This assumption proved to be correct. The questionnaires indicated that much of this theory was absorbed and that the basic concepts were understood by the majority of the class.

### **Comments on the timeframe of the lessons**

Owing to school commitments this study was dispersed intermittently over a considerable length of time (26 weeks) from the 27 March (lesson 1) to the 25 September (lesson 8) including two term holidays. To be more effective the lessons need to be consolidated into a shorter timeframe and on a regular basis. It might also be an advantage for students if they were to have follow-up lessons in the following year (in this case year 11).

### **Final comments**

There have been many methods devised to teach jazz improvisation. To successfully improvise relies on an understanding of the basic underlying rudiments that support all music. This study mainly focused on the theory behind the music as well as trying to provide some insight into how to 'reorder it to produce something different'.

Music as an art form is dynamic. It has movement over space and time like language or poetry, as opposed to a painting or a sculpture which are static, but which might have the suggestion of movement in their form. Harmonies, melodies and rhythm move over time from one place to another with the specific purpose of expressing an idea or an emotion.

When we use language we think in ideas not in words. The words are simply a tool we use to express our thoughts. Words alone can have little meaning if not conveyed

in a recognizable sequence. The rules and vagaries of language are many and varied and have to be understood to successfully communicate on an intellectual level.

Similarly chord-scale theory has become an important part, but only a part of the vocabulary of the jazz improviser. What is possible is totally at the whim of the improviser for in the end there is only one rule, 'what sounds good is good'.

Hector Berlioz states that "time has restored all things one by one to their proper place...and people are now more generally disposed to accept that in harmony melody and modulation what sounds good is good and what sounds bad is bad; Not even the authority of a hundred old men not even if all 120 years old, would make us regard fair as foul and foul as fair".<sup>1</sup>

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<sup>1</sup> Berlioz, B. *Berlioz's Orchestration Theorist, A Translation and Commentary*, Hugh Macdonald. (Cambridge, Cambridge University Press, 2002) Introduction p4.  
[http://books.google.com/books?id=y\\_sU12lqCYC&pg=PA4&lpg=PA4&dq=%22what+sounds+good+is+good%22&source=bl&ots=tsDug6vJIY&sig=jmuY6kwEEI\\_rQH BdxZEP5AFNLY&hl=en&ei=0ZAsSq2oFpKIkQXcksGICw&sa=X&oi=book\\_result&ct=result&resnum=4](http://books.google.com/books?id=y_sU12lqCYC&pg=PA4&lpg=PA4&dq=%22what+sounds+good+is+good%22&source=bl&ots=tsDug6vJIY&sig=jmuY6kwEEI_rQH BdxZEP5AFNLY&hl=en&ei=0ZAsSq2oFpKIkQXcksGICw&sa=X&oi=book_result&ct=result&resnum=4) (accessed 22<sup>nd</sup>, June, 2009)

## Appendix 1: Lesson plan-class notes Part A

### Lesson 1: Introduction to improvisation

The NSW Board of Studies syllabus for both Music 1 and Music 2 recognises the role that improvisation plays in music and in music education. In regard to Music 2 it states ... “improvisation has an important function in music education as a tool for developing knowledge, skills and understanding of a variety of aspects of music. Teachers are encouraged to include it as an integral part of both performance and composition activities”.<sup>1</sup> The wording in the syllabus for both Music 1 and Music 2 in regard to improvisation is similar and includes a description of what improvisation is and where it may occur in music and there is also a particular reference to jazz. As improvisation plays such a major roll in the performance of this music the aim of this class is to shed some light on what improvisation is and how it works.

The NSW Board of Studies Music 1 Stage 6 syllabus states...“improvisation is the simultaneous creation and performance of music...The improviser draws on known information and seeks to re-order it to produce something different”.<sup>2</sup> The keywords in the above statements are ‘known information’ and ‘re-ordering it’. The purpose therefore of this study is to provide not only ‘information’, but also some insight on how to ‘re-order it’ to produce something different. This study will be divided into 4 parts with accompanying notes.

Piano solo: Ray Forster: *A Night in Tunisia* by Dizzy Gillespie and Frank Paparelli  
Popular western music of the last hundred years or so, namely jazz and rock music is generally regarded as having its origin in the blending and mixing of African rhythm and European harmony. The main difference with this music in comparison to what was common practice at the time, is that jazz and rock are melodically, rhythmically and often harmonically improvised, or ‘made up on the moment’ while still conforming to the established structure and harmonic implications of the original melody.

*A Night in Tunisia*, CD recording by Art Blakey and The Jazz Messengers.

- Melody: 3 themes - A, B and C

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<sup>1</sup> NSW Board of Studies. Music 2 Stage 6 Syllabus,  
<http://www.boardofstudies.nsw.edu.au> (accessed 10 Mar 2008)

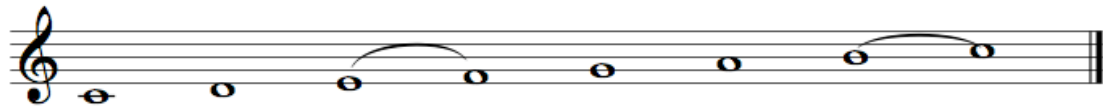
<sup>2</sup> Ibid

- Structure: AABAC (C is an interlude) solos are on AABA
- Harmony: A section - Key, D minor  
B section - Key, G minor and F major  
C section - Key, D minor and F major
- Rhythm: Afro-Cuban/Swing, (broken bass line to swing four)

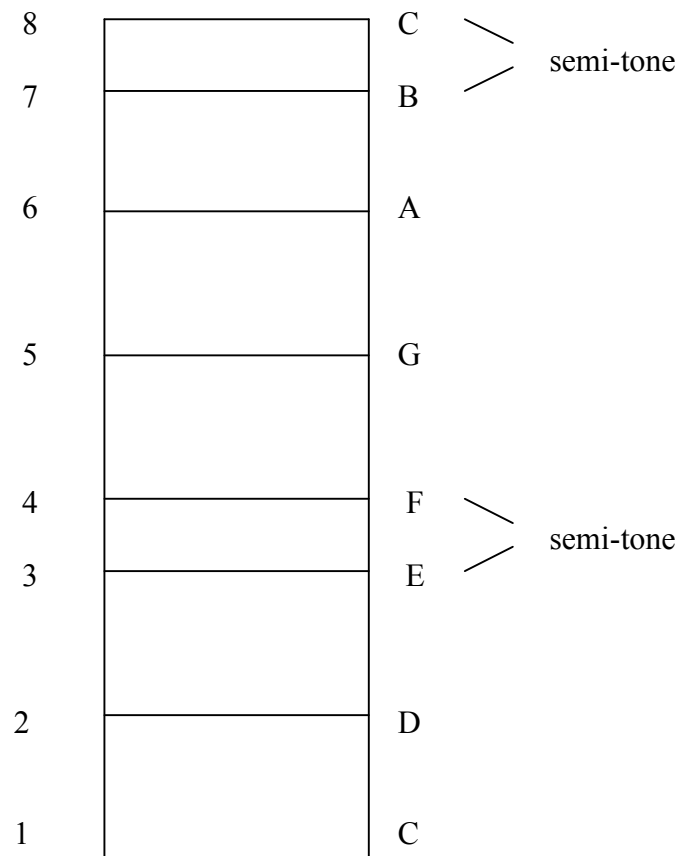
### Chord-Scale theory and its application to jazz improvisation

Chords and scales are related as chords are derived from the scales. It is possible therefore to think of a chord as a scale and then use the notes of that scale to create an improvisation. Also known as scale theory this is an important method in the teaching of modern improvisation.

Example 1: C major scale



Example 2: The major scale as a ladder. Note the semi-tones between 3<sup>rd</sup> and 4<sup>th</sup> and 7<sup>th</sup> and 8<sup>th</sup> degrees.



It is this pattern of whole and half steps that makes the scale sound major:  
All major scales must follow this same pattern to be major (tone, tone, semi-tone,  
tone, tone, tone, semi-tone).

Because the scale follows a pattern then so too do the chords that are constructed on  
each note or degree of all major scales.

Example 3: C major scale with chords

The image shows a musical staff with a treble clef. Above the staff, Roman numerals I through VIII are placed above each note of the C major scale. Below the staff, the corresponding chord names are listed: Cmaj, Dmin, Emin, Fmaj, Gmaj, Amin, Bdim, and Cmaj. The chords are represented by groups of three notes on the staff, indicating their construction from the scale notes.

### Scales and chords

Scales are built in steps of major and minor 2nds (tones and semi-tones). Chords are constructed (from the scales) in steps of major and minor 3rds, Play a note, miss a note, play a note, miss a note, play a note and we have constructed a three note chord called a triad, as above.

The pattern on the major scale is always; major- minor- minor- major- major -minor - diminished and major. Note that, each degree or scale note is identified by a Roman numeral.

This system allows the improviser to analyse chord progressions and key centres as he plays. Not only does it identify the key centre but also tracks the position and the relationship of each individual chord to each individual key centre.

Jazz and rock songs will often move to other key centres that are sometimes not even related to the key the song is written in. So an understanding of this movement is an important tool in the art of improvisation.



## Triads

There are two types of 3rds, major and minor. By stacking one on top of the other there are only four possible combinations:

Major 3<sup>rd</sup> on the bottom and a minor 3<sup>rd</sup> on top; major chord

Minor 3<sup>rd</sup> on the bottom and a major 3<sup>rd</sup> on top; minor chord

Minor 3rds bottom and top; diminished chord.

Major 3rds bottom and top; augmented chord

Example 4: The 4 types of triads.



Each chord has its own sound; play all four.

Major triad - strong happy sound or quality

Minor triad - sad or tragic sound or quality

Diminished - agitated or tense sound

Augmented - wants to move to resolution

There are several ways to construct these three note chords. The traditional way is to measure each note from the root, so a major triad has a root, a major 3<sup>rd</sup> and a perfect 5<sup>th</sup>; and we could also count the notes between each interval (a major 3<sup>rd</sup> has 4 semi-tone steps and a minor 3<sup>rd</sup> has 3). However the easiest way is to simply know which note to move to get from one chord to another.

There are 4 types of triads and there are 12 keys, meaning that there are 48 combinations. However we really only need to memorize the pattern of chords on the C major scale and follow these four simple rules to make any of these 48 chords easy to find.

1- From major to minor, lower the middle note a semi-tone.

2- From minor to major, raise the middle note a semi-tone.

3-To make a diminished chord, go to a minor chord and lower the top note a semitone.

4-To make an augmented chord, go to a major chord and raise the top note a semitone.

As stated, 'scales and chords are related'. In general the scale notes are used to create the melody, and the chords belonging to that scale are used to support that melody. Other non-scale notes may be used as may other non-scale chords. In jazz and in rock music too, these harmonies or chord progressions will often follow a pattern or sequence that is directly related to the cycle of 5<sup>ths</sup>.

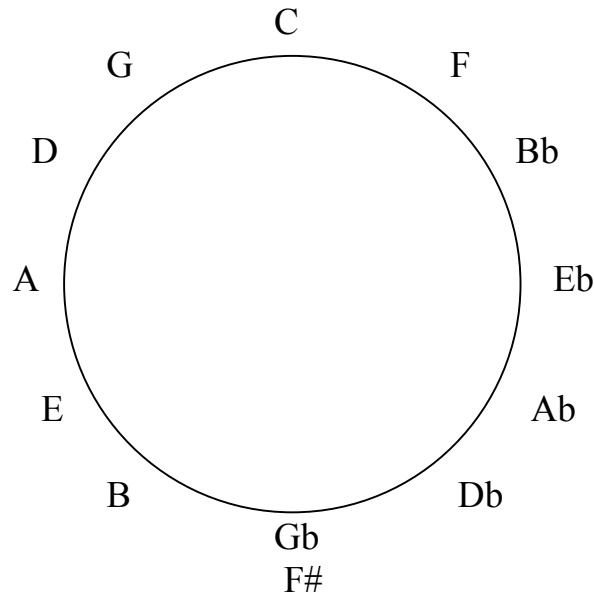
One of the most common of these patterns is known as a I-VI-II-V-I chord progression. As all these chords are a part of, and are related to the 'parent' scale of C major (example 12) it stands to reason that we might use these notes (as a starting point) to create our own melody or improvisation.

Piano solo: Ray Forster: *Heart and Soul* and *Blue Moon*

## Appendix 2: Lesson Plan/Class Notes Part B

Lesson 3: Chord progressions and the cycle of 5ths The cycle of 5ths, and its role in this analysis

Example 5: Cycle of 5ths



This natural cycle in the above example moves in a clockwise direction: C goes to F; F goes to Bb; Bb goes to Eb etc. The basic progression (from Part A) is often called ‘playing around the cycle’ and is identified by the numerals; I-VI-II-V-I.

In the key of C, this equals – Cmaj Amin Dmin Gmaj Cmaj etc,

In this particular chord progression the I chord (C major) moves to its relative minor, the VI chord (A minor). The root movement then follows the cycle back to C through D minor and G major.

There are thousands of standard songs that use this basic cycle, either in full or in part. This cycle does not always start on the I chord, and will often start on the II chord, and in some songs on the VI chord with the chords still following the cycle.

*Heart and Soul* and *Blue Moon* both start on the I chord and follow the cycle; the bridge of *Blue Moon* starts on the II chord and then follows the cycle to a key change which then follows its own cycle. *All the Things You Are* and *Fly Me to the Moon*

starts on the VI chord and follow the cycle some of the way, before moving to another key centre to follow yet another cycle in the new key.

Chord progressions are like signposts that point to key centres

Example 6: The Basic Cycle in C

I VI II V I  
Cmaj Amin Dmin Gmaj Cmaj etc,

Same cycle but starts on the II chord

II V I VI II V I  
Dmin Gmaj Cmaj Amin Dmin Gmaj Cmaj

Sometimes just II V I VI  
Dmin Gmaj Cmaj Amin

The majority II V I  
Dmin Gmaj Cmaj


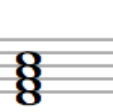
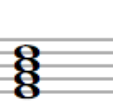
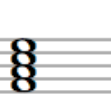

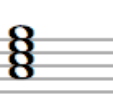
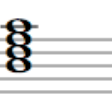

And even just II V  
Dmin Gmaj

Note: Regardless of where the cycle starts, all the above chords are a part of the parent scale of C major and so it is possible to use this 'known information' to 're-order it to produce something different'.

In jazz all these chords would normally be 4 note chords called 7<sup>th</sup> chords.

### Four Note Chords

Example 7: 4 note chords in C

I	II	III	IV	V	VI	VII	VIII
							
Cmaj7	Dmin7	Emin7	Fmaj7	G7	Amin7	Bmin7b5	Cmaj7

Note: They now have different names

The V chord (Gmaj) is now G7 (full title) G dominant 7<sup>th</sup>,

The VII chord (Bdim) is now B half-diminished or Bmin7b5.

There are several ways to construct these chords.

One simple way is to mix and match the 4 triads to 2 types of 7ths,

- Two types of 7ths, - Maj7th, (semi-tone below the octave)  
 - Min7th, (whole tone below the octave)

Example 8: The 4 types of triads plus the 2 types of 7ths,

Maj      Min      Dim      Aug      Maj7th      Min7th

Chord Type	Example	Triad	7 <sup>th</sup>	Chord Symbols
C Major 7th		Maj	Maj	Cmaj7 - CΔ - CΔ7
C Dominant 7 <sup>th</sup>		Maj	Min	C7 - C9 - C13
C Augmented 7 <sup>th</sup>		Aug	Min	C7#5 - C7aug - C+7
C Minor 7 <sup>th</sup>		Min	Min	Cm7 - C-7 - Cm9
C Half-diminished 7 <sup>th</sup>		Dim	Min	Cm7b5 - CØ
C Minor/Maj7th		Min	Maj	Cm/maj7 - C-/Δ7
C Diminished 7 <sup>th</sup>		Dim	Dim	Co - Co7 - Cdim7
C 7 suspended 4 <sup>th</sup>		no 3rd	Min	C7sus - Bb/c - C711

At the most basic level, as in Example 15 (The Basic Cycle in C) it is possible to think one common scale, the parent scale of C major and use those notes to construct an improvisation.

From the point of view of pure chord/scale theory this ‘common scale’ approach can only be considered as a starting point for the would-be improviser as each individual chord has its own unique relationship to its related scale or mode. Each chord has its own sound or function as has their related modes.

A mode is the name given to the scales that are constructed on each degree or note from the parent scale.

Example 9: The modes on the parent scale of C Major

Example 9 displays the seven modes of the C major scale, each with its corresponding chord symbol. The modes are shown on a single treble clef staff, with notes represented by whole notes. The modes and their corresponding chords are:

- 1 C Ionian = Cmaj7
- 2 D Dorian = Dm7
- 3 E Phrygian = Em7
- 4 F Lydian = Fmaj7
- 5 G Mixolydian = G7
- 6 A Aeolian = Am7
- 7 B Locrian = Bm7b5

In his book *The Jazz Piano Book*, Chapter 9, ‘Introduction: why scales?’ Mark Levine states ... “the reason jazz musicians think of scales or modes when they improvise, (is) because it is easier than thinking of chords”.<sup>3</sup>

Jazz musicians not only think chord notes but also the extensions to the chord; the 9<sup>th</sup>, 11<sup>th</sup>, and 13<sup>th</sup>. It is easier to think of these notes when they are in a scale.

Chords are built in steps of major and minor 3rds,

Scales are built in steps of major and minor 2nds,

Example 10: II-V-I chord progression and related scales in C.

The image displays three musical staves in treble clef, each representing a different mode and its corresponding II-V-I chord progression in C major. The notes are written as half notes on a five-line staff. Above the notes, the scale degrees 2=9, 4=11, and 6=13 are indicated. The chord notes are enclosed in brackets. At the end of each staff, the final chord and its extensions (9, 11, 13) are shown as a vertical stack of notes with their respective scale degrees (9, 11, 13) written to the right.

- D Dorian:** Scale notes: D (2), E (3), F (4), G (5), A (6), B (7), C (8). Chord notes: D (2), F (4), A (6). Extensions: G (9), B (11), C (13). Chord: Dm<sup>7</sup> (9,11,13).
- G Mixolydian:** Scale notes: G (2), A (3), B (4), C (5), D (6), E (7), F (7<sup>♭</sup>). Chord notes: G (2), B (4), D (6). Extensions: A (9), C (11), D (13). Chord: G<sup>7</sup> (9,11,13).
- C major/Ionian:** Scale notes: C (2), D (3), E (4), F (5), G (6), A (7), B (7). Chord notes: C (2), E (4), G (6). Extensions: D (9), F (11), G (13). Chord: Cmaj<sup>7</sup> (9,11,13).

Chords and scales are related. In the above example the chord notes are bracketed and the notes in between the chord notes become the extensions to the chord: the 9<sup>th</sup>, 11<sup>th</sup>, and 13<sup>th</sup>.

The chord notes are static or fixed, as they must be the true representation of the underlying harmonies; set in concrete so to speak. They provide the stable harmonic platform from which the melodic line moves from one chord tone to the next, thus alerting the ear to the harmonic implications within the moving line.

The extensions are often used as approach notes, but the approach notes act as guide tones and are flexible and can move with the ear of the improviser, they are free of constraints and able to alter to fit the mood and style of the music.

<sup>3</sup> Levine, M. *The Jazz Piano Book*. (1989) Sher Music Co, Petaluma, p59.

Approach notes are non-chord notes. These notes add tension to the improvised line and when they resolve to an adjacent chord tone, provide the ear with release of tension.

Please learn these 2 'common scales' on your particular instrument

Concert —C Aeolian minor

Db Major



Bb instruments----D Aeolian minor

Eb Major



Eb instruments----A Aeolian minor

Bb Major





### Appendix 3: Lesson Plan/Class Notes Part C

#### Lesson 5: The Blues

There is an argument that suggests that if it was not for ‘the blues’ there would not be any jazz and therefore no rock or popular music as we know it today.

‘The Blues’ was possibly the determinant factor in the success of jazz as the popular music of the 20<sup>th</sup>, century and continues to be a major influence on both jazz and rock music. Martin maintains that “the more non-functional basis of the blues surely derived from its being closer to its African origins...indeed the tension between the form and harmony of the European tradition and the linear, rhythmic focus of African music was perhaps a key to the foundation of jazz”.<sup>4</sup>

The National Association for Music Education states that, “The blues is one of America's greatest musical treasures. A roots music form that evolved out of African-American work songs, field hollers, spirituals, and country string ballads more than a century ago, the blues is the foundation of virtually every major American music form born in the 20th century, including jazz, rhythm and blues, rock and roll, and hip-hop”<sup>5</sup>.

Music is a three-dimensional language or method of expression. The three basic elements or the axis of music are rhythm, melody and harmony.

The rhythms are of African origin and make use of the backbeat (accents on beats 2 and 4). The melody uses altered notes from the major scale (called blues notes). The basic standard harmonies are built on the three principal chords from the key centre (I, IV and V) usually use 4 note dominant 7<sup>th</sup>, chords.

For the purpose of this study we will begin with the basic 3 chord/12 bar blues structure and also examine the use of two basic ‘common’ scales that are often used over the whole chord progression to create an improvisation.

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<sup>4</sup> Martin, H. “Jazz Theory: An Overview”. *Journal of Jazz Studies*, Vol, 3. (1976): p6

<sup>5</sup> The Blues, National Association for Music Education. downloaded 6th, march 2009  
[www.pbs.org/theblues/classroom.html](http://www.pbs.org/theblues/classroom.html)

Example 11: The basic 12 bar blues structure and chords

The image shows three staves of musical notation for a 12-bar blues structure. The first staff begins with a C7 chord. The second staff starts with an F7 chord at bar 5 and a C7 chord at bar 9. The third staff starts with a G7 chord at bar 9, an F7 chord at bar 10, and a C7 chord at bar 11.

The two scales are the “blues scale” and the ‘blues pentatonic’.

Example 12: The blues scale in C

The image shows a single staff of musical notation for the blues scale in C. The notes are C, E-flat, F, G, A-flat, B-flat, and C.

Example 13: The blues pentatonic

The image shows a single staff of musical notation for the blues pentatonic scale in C. The notes are C, E, G, A, and C.

In theory at least, the blues scale and the blues pentatonic can be regarded as ‘common scales’ that fit over the whole chord progression (one scale fits all). However not all the scale notes sound good over all chords, particularly the G flat in example 12, but missing in example 13.

The basic traditional 12 bar blues was founded on the African tradition of ‘call and response’ (two repetitive calls of 4 bars each and one response of 4 bars: equals 12 bars).

Each call or musical phrase has a beginning and an ending that fits into the structure of each 4 bars (this is indicated below by the slurs which end on the beginning of the 3<sup>rd</sup>, or 4<sup>th</sup>, bar).

## Example 14: Call and response

Note: the chord change to F7 on bar 2. (There are many other harmonic possibility).

Played CD examples: appendix 14

*St Louis Blues* sung by Maxine Sullivan

*CC Rider* sung by Jerry Lee Lewis

*CC Rider* The Gene Harris Quartet

## Example 15: Class vocal solo

As the blues scale has only six notes and the blues pentatonic five, any improvisation is limited and tends to become predictable. In theory all the notes of the C major scale are useable plus the 3 blues notes (in practice any note may be used if it works). In the key of C these missing notes are D,E,A and B. However some notes only work over certain chords and this involves having more ‘information to reorder’.

## Pentatonic scales and Blues notes

Example 16: The three pentatonic scales

1 C Pentatonic

2 F Pentatonic

3 G Pentatonic

Now instead of having only one scale that works over all chords we have three separate scales that match the three separate chords. Add to each scale the blues notes and we now have an eight or seven note scale for each chord.

Example 17: C pentatonic plus the 3 blues notes over C7

Note:

- Not all blues songs have a 12 bars structure; some are 16 bars or whatever was needed to fit the words or music into
- Herbie Hancock's *Watermelon Man* is a 16 bar blues
- Elvis Presley's *Jail House Rock* is also 16 bars
- Some songs double the bars to 24 bars, and there are many other examples
- Not all blues songs use the same rhythm, feel or time signature
- Not all chords are as simple as the three chords so far used. The blues can be re-harmonized to include other chord movement, so there are many other harmonic possibilities.

Below are 7 harmonic examples starting with the most basic to quite complicated and complex.

These are just a few examples of re-harmonized blues progressions

Note: chords in the same column are interchangeable

## Example 18: Chord substitutions on the Blues

	1	2	3	4	5	6	7	8	9	10	11	12
1	C				F		C		G		C	
2	C7				F7		C7		G7	F7	C7	
3	C7	F7	C7		F7	F#o	C7	A7	D-7	G7	C7	G7
4	C7 C7/E	F7 F#o	C7/G	C7	F7	F#o	C7 F7	E-7 A7	D-7	G7	C7 A7	D-7 G7
5	C7	F7	C7	G-7 C7	F7	F-7 Bb7	C7	Bb7 A7	D-7	G7	C7 A-7	D-7 G7
6	Cmaj7	B-7 E7	A-7 D7	G-7 C7	F 7	F-7 Bb7	EbΔ7	Eb-7Ab7	DbΔ7	D-7 G7	E-7 Eb7	D-7 Db7
7	C#7F#7	B7 E7	A7 D7	G7 C7	F7	F#o	C7 D-7	E-7Eb7	D-7	G7	C7 Eb7	Ab7 G7

Piano solos; Ray Forster

No 4, *Straight No Chaser* by Thelonius Monk

No 6, *Bluesette* by Toots Thieleman (CD example Track 6).

## Appendix 4: Lesson Plan/Class Notes Part D

### Lesson 7: Chord substitutions

It would be regarded as common practice for jazz musicians to re-harmonise certain melodies to make them more interesting to play and to listen to. This usually means replacing one or more chords with chords that have a harmonic relationship to the chords being replaced.

Below are 6 rules that examine some of these commonly used chord substitutions and their relationship to each other and to key centres. This will also help to explain some of the unusual harmonic changes on the blues in example 27.

Rule 1: The tri-tone substitution (all examples in the key of C).

The V7 chord G7 going to C (major or minor) can be replaced by the bII7<sup>th</sup> chord Db7 and still go to C (major or minor).

Example 19: V7 to I and bII7 to I

or	V7	→	I	=	G7	→	C
	bII7	→	I	=	Db7	→	C

This can also work in reverse; key of Gb

or	V7	→	I	=	Db7	→	Gb
	bII7	→	I	=	G7	→	Gb

G and Db/C# are a tri-tone apart and can replace each other. A tri-tone is an interval of an augmented 4<sup>th</sup>, or 3 tones; it divides the octave exactly in half.

Example 20: Tri-tone



Rationale: The interval between the 3<sup>rd</sup> and 7<sup>th</sup>, in a dominant 7<sup>th</sup>, chord is also a tri-tone (an unstable interval) and wants to resolve to a stable interval either inwardly or outwardly: G7 and Db7 share the same 3<sup>rd</sup> and 7<sup>th</sup>

Example 21: V7 to I and bII7 to I (resolution)

The image shows two musical staves. The first staff illustrates a Perfect Cadence: a G7 chord (with 7th and 3rd notes) moves to a C chord (with 3rd and 1st notes). The second staff illustrates a Tri-tone Substitution: a G7 chord (with 7th and 3rd notes) moves to a Gb7 chord (with 7th, 3rd, and 1st notes).

Note: The 5<sup>th</sup>, has no bearing on the chords function (or what the chord does) but the 3<sup>rd</sup>, and 7<sup>th</sup> do.

Example 22: List of dominant 7ths, and related tri-tones

G7	←→	Db7
C7		Gb7
F7		B7
Bb7		E7
Eb7		A7
Ab7	←→	E7

Note: These work either way

Rule 2: A II chord may precede a V chord and a V chord may follow its related II chord provided it is compatible with the style of the music and does not clash with the melody.

Example 23: Alterations using rule 1 and rule 2 on a V – I progression

<u>Original</u>	V G7 Dm7	G7	I C C
<u>Altered</u>	Dm7	Db7	C
	Dm7 G7	Abm7 Db7	C
	Abm7 Db7	Dm7 G7	C
	Abm7	Db7	C
	Db7		C

Rule 3: a III chord may replace a I chord in a cycle of 5ths, progression

Example 24: III replaces I in the cycle

I	VI	II	V	<b>III</b>	VI	II	V	I
Cmaj7	Am7	Dm7	G7	<b>Em7</b>	Am7	Dm7	G7	Cmaj7

Rationale: There are three tonal groups formed on the major scale known as the ‘three pillars of harmony’.

The tonic group of chords: I, III and VI

The subdominant group: IV and II

The dominant group: V and VII

As the I chord and the III chord are in the same tonic group, still following the cycle the III chord (Em7) can replace the I chord (Cmaj7).

Rule 4: The quality of a chord may change to fit the mood or harmonic structure of the song.

Example 25: Chord quality change

I	VI	II	V	<b>III</b>	<b>VI7</b>	II	V	I
Cmaj7	Am7	Dm7	G7	<b>Em7</b>	<b>A7</b>	Dm7	G7	Cmaj7

In bar 3 the quality of Am7 has been changed to the dominant chord A7.

Rationale: Em7 and A7 now act as a II – V chord progression leading to D minor which then follows the cycle back to C.

Note: Again this alteration will only work if it does not clash with the melody.

Rule 5: A diminished chord usually functions as a disguised dominant 7<sup>th</sup>, b9 chord, or as a chromatic passing chord. It can also function on its own (irregular diminished 7<sup>th</sup>.)

Example 26: Diminished chord as a disguised dominant 7<sup>th</sup>, b9 chord

Cmaj7	<b>A7b9</b>	Dm7	G7	or	Cmaj7	<b>C#dim</b>	Dm7	etc,
-------	-------------	-----	----	----	-------	--------------	-----	------

Rule 6: A IV minor chord can be replaced with its related dominant.

Example 27: Bb7 replaces Fm.

In C	I	VI	II	V	I	I7	IV	IVm	I
	Cmaj7	Am7	Dm7	G7	Cmaj7	C7	Fmaj7	<b>Fm</b> or <b>Bb7</b>	Cmaj7



Rationale: a V chord can follow or replace its related II chord as in rule 2.

Fm as a II chord (key of Eb) is replaced by Bb7 the V chord.

Using all 6 rules we can radically alter the harmonic structure of most songs.

Here are just a few examples of the possible re-harmonisation of *Heart and Soul* (bottom chord line basic; top line altered).

Example 28: *Heart and Soul* with altered harmonies

Example 28: *Heart and Soul* with altered harmonies

Staff 1: B<sup>b</sup>7/C, Am<sup>7</sup>/Am, A<sup>b</sup>7/Dm, G<sup>7</sup>/G, G<sup>7</sup>/F, Em<sup>7</sup>/C, A<sup>7b</sup><sup>9</sup>/Am, Dm<sup>7</sup>/Dm, G<sup>7</sup>sus/G, G<sup>7</sup>

Staff 2: Cmaj<sup>7</sup>/C, Gm<sup>7</sup>/Am, F<sup>#</sup>7<sup>#</sup>11/Dm, Fmaj<sup>7</sup>/G, B<sup>b</sup>7<sup>#</sup>11/C, Cmaj/Am, E<sup>b</sup>6/Dm, D<sup>7</sup>/Dm, D<sup>b</sup>maj<sup>7</sup>/G

Staff 3: Cmaj<sup>7</sup>/C, Am<sup>7</sup>/Am, Dm<sup>7</sup>/Dm, G<sup>7</sup>/G, B<sup>b</sup>7<sup>#</sup>11/C, A<sup>7b</sup><sup>9</sup>/Am, Dm<sup>7</sup>/Dm, G<sup>7</sup>sus/G, G<sup>7</sup>

Staff 4: Cmaj<sup>7</sup>/C, Gm<sup>7</sup>/Am, C<sup>7</sup>/Dm, Fmaj<sup>7</sup>/G, Fm/mj<sup>7</sup>/G, Em<sup>7</sup>/C, A<sup>7b</sup><sup>9</sup>/Am, Dm<sup>7</sup>/Dm, G<sup>7</sup>sus/G, G<sup>7</sup>

Staff 5: E<sup>b</sup>6, D<sup>7</sup>, D<sup>b</sup>maj<sup>7</sup>, Cmaj<sup>7</sup>

## Appendix 5: Preliminary Questionnaire and results

(this class had 12 students)

- |  |               |
|--|---------------|
| 1- Do you understand the principal that improvised solos not only follow the structure of a song but also its harmonies?   | Result: 12/12 |
| 2- Chord progressions usually follow the cycle of 5ths, Are you familiar with the cycle of 5ths?   | 8/12          |
| 3- Can you name the order of this cycle starting on C going to F to Bb etc?  | 6/12          |
| 4- Can you name the (4 only) three note chords called triads?  | 7/12          |
| 5-Do you know how to construct them?   | 5/12          |
| 6- Name the notes of; C augmented  | 3/12          |
| 7- Do you know the difference between the 4 note chords, Cmaj7, C7 and Cmin7 and can you name the notes of these three chords?   | 5/12          |
| 8- Cmaj7 = _____ C7 = _____ Cmin7 = _____:   | 3/12          |
| 9- Are you aware that most jazz songs often move through several keys and that it is usually the chord progressions and not the melody that identifies the individual key centres that accompany a song?   | 11/12         |
| 10- Dm7 to G7 is what is called a II - V chord progression. Name the parent scale or key centre that these two chords are from.  | 6/12          |
| 11-Do you know that it is possible to re-harmonize a melody by replacing one chord with another chord that has similar characteristics?  | 8/12          |
| 12- One device (and there are several) is common in music and it is called a tri-tone chord substitution. Can you name the chord to replace a G7 that goes to C major in this common V to I chord progression? hint; the chords root is the tri-tone of G. | 0/12          |

## Appendix 6: Section Heading Questionnaire. Part A

Introduction to improvisation and results (this class had 11 students)

- |   |               |
|---|---------------|
| 1- Do you understand the concept that improvised solos follow the physical structure as well as the harmonic structure of a song? | Result: 10/11 |
| 2- Do you understand the terms, A,B,C; Introduction and Tag or Coda, that are used to describe the physical structure of a song?  | 11/11         |
| 3- Could you follow the path the solo took through the AABA structure of 'Night in Tunisia'?                                      | 10/11         |
| 4- Can you name the pattern of Maj, Min and Dim, chords that are built on the notes of all Major scales?                          | 9/11          |
| 5-What are they?  | 9/11          |
| 6- Do you understand the method used to make all 4 types of three note chords on any note on the C major scale?                   | 10/11         |
| 7- What part of this study don't you understand or would like me to review?   |               |

Five of six wanted more information on modes, minor scales, cycle of 5<sup>th</sup>, and naming chords, all of which to be covered in the next lecture. One student said, 'A bit too much repetition'.

**Appendix 7: Section Heading Questionnaire, Part B**

Chord Progressions and the Cycle of 5ths and results (this class had 12 students)

- 1- Do you understand the general principal that chords, using the cycle of 5ths, move around a cycle that is contained in one key before moving on to another cycle of chords in another key. 12/12
- 2- Name the chords in the chord progression; I, IV ,II, V, I. in the key of C major. 7/12
- 3- As this chord progression will not always start on the I chord (Cmaj). Name the chords in the key of C major using the same cycle (I goes to VI; VI goes to II etc,) but starting on the II chord (D min) and moving around this same cycle to finish on the I chord. 4/12
- 4- When a fourth note is added to three note chords the names of the chords change. Name these chords starting on the I chord (Cmaj7) 2/12
- 5 Do you understand how to construct 4 note chords? 11/12

**Appendix 8: Section Heading Questionnaires, Part C**

The Blues and results (this class had 12 students)

- |  |       |
|--|-------|
| 1- On a three chord 12 bar blues in the key of C, what are the names of the other two chords.  | 10/12 |
| 2- On what number bar might these chords appear and which one.   | 7/12  |
| 3- Name the notes in the C blues scale.  | 12/12 |
| 4- Do you understand that on a simple three chord blues there are other notes that can be used apart from just the notes of the 'blues scale'.   | 12/12 |
| 5- The commonly used 'blues scale' contains three 'blues notes' and only three notes from the diatonic major scale. Name the three blues notes in a C blues.   | 9/12  |
| 6-Name the three scale notes in C.   | 7/12  |
| 7- As all the notes from the major scale can be used, (including the three blues notes) but only on certain chords, how do we establish which notes are appropriate on each chord. What scales are used over each chord in the key of C. | 3/12  |
| 8- Name the notes of C pentatonic.   | 8/12  |

### Appendix 9: Concluding Questionnaire

Is your main study in classical music?	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
Interested in jazz and/or improvisation?	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
Over all has this study been beneficial?	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
Will you be able to make use the class notes?	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>

Below is a list of the main topics and points from these eight lectures and four sets of notes on the theory of improvisation and modern music.

Please tick a box if you feel it applies to you and also feel free to make any comment you feel appropriate regarding this study.

What part of this study did you find the most informative and/or useful? (can tick more than one box).

#### Part 1

- The structure of songs.
- Following solos.
- Making 3 note chords.
- The common I, VI, II, V, I. cycle chord progression.

#### Part 2

- Using the cycle of 5ths, to find the key centre or parent scale.
- Using this common scale to create an improvisation.
- How to make 4 note chords.
- Chord symbols.
- The relationship of the chords to the modes on the major scale.
- Chord notes and approach notes for improvisation.

#### Part 3

- The basic 12 bar blues structure and chords.
- The 'one scale fits all' idea over the whole blues progression.
- Using 'call and response' to develop a solo.
- Thinking Pentatonic scales and blues notes for each chord.
- Re-harmonising the blues.

**Part 4**

- Using the tri-tone substitution.
- Placing a II chord in front of a V chord.
- Substituting a III chord for a I chord in a cycle.
- Altering the quality of a chord to fit the melody.
- Replacing a V7b9 chord with a diminished chord.
- Replacing a IV minor chord with a bVII dominant.

**Your Comments.**

## Appendix 10: Ethics approval, The University of Sydney



**The University of Sydney**

**Human Research Ethics Committee**

Web: <http://www.usyd.edu.au/ethics/human>

ABN 15 211 513 464

**Gail Briody**  
 Manager  
 Office of Ethics Administration

**Marietta Coutinho**  
 Deputy Manager  
 Human Research Ethics Administration

Telephone: +61 2 8627 8175  
 Facsimile: +61 2 8627 8180  
 Email: [gbriody@usyd.edu.au](mailto:gbriody@usyd.edu.au)

Telephone: +61 2 8627 8176  
 Facsimile: +61 2 8627 8177  
 Email: [mcoutinho@usyd.edu.au](mailto:mcoutinho@usyd.edu.au)

**Mailing Address:**

Level 6  
 Jane Foss Russell Building – G02  
 The University of Sydney  
 NSW 2006 AUSTRALIA

Ref: DC/PE

6 March 2009

Associate Professor Peter Dunbar-Hall  
 Sydney Conservatorium of Music – C41  
 The University of Sydney  
 Email: [p.dunbar-hall@usyd.edu.au](mailto:p.dunbar-hall@usyd.edu.au)

Dear Professor Dunbar-Hall

Thank you for your correspondence dated 28 January 2009 (sent by Mr. Craig Scott on your behalf) addressing comments made to you by the Human Research Ethics Committee (HREC). After considering the additional information, the Executive Committee at its meeting on 5 March 2009 approved your protocol entitled "**Chord/Scale theory and its application to improvisation for music students at secondary schools**".

Details of the approval are as follows:

<b>Ref No.:</b>	<b>03-2009/11484</b>
<b>Approval Period:</b>	<b>March 2009 – March 2010</b>
<b>Authorised Personnel:</b>	<b>Associate Professor Dunbar-Hall Mr. Raymond Forster</b>

The HREC is a fully constituted Ethics Committee in accordance with the *National Statement on Ethical Conduct in Research Involving Humans-March 2007* under Section 5.1.29

The approval of this project is **conditional** upon your continuing compliance with the *National Statement on Ethical Conduct in Research Involving Humans*. We draw to your attention the requirement that a report on this research must be submitted every 12 months from the date of the approval or on completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed.



**Chief Investigator / Supervisor's responsibilities to ensure that:**

- (1) All serious and unexpected adverse events should be reported to the HREC as soon as possible.
- (2) All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.
- (3) The HREC must be notified as soon as possible of any changes to the protocol. All changes must be approved by the HREC before continuation of the research project. These include:-
  - If any of the investigators change or leave the University.
  - Any changes to the Participant Information Statement and/or Consent Form.
- (4) All research participants are to be provided with a Participant Information Statement and Consent Form, unless otherwise agreed by the Committee. The Participant Information Statement and Consent Form are to be on University of Sydney letterhead and include the full title of the research project and telephone contacts for the researchers, unless otherwise agreed by the Committee and the following statement must appear on the bottom of the Participant Information Statement. *Any person with concerns or complaints about the conduct of a research study can contact the Manager, Ethics Administration, University of Sydney, on (02) 8627 8175 (Telephone); (02) 8627 8180 (Facsimile) or [qbriody@usyd.edu.au](mailto:qbriody@usyd.edu.au) (Email).*
- (5) Copies of all signed Consent Forms must be retained and made available to the HREC on request.
- (6) It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.
- (7) The HREC approval is valid for four (4) years from the Approval Period stated in this letter. Investigators are requested to submit a progress report annually.
- (8) A report and a copy of any published material should be provided at the completion of the Project.

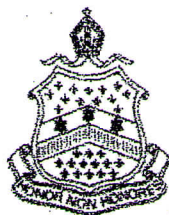
Yours sincerely



**Professor D I Cook**  
**Chairman**  
**Human Research Ethics Committee**

cc: Mr. Raymond Foster [r\\_for0162@mail.usyd.edu.au](mailto:r_for0162@mail.usyd.edu.au)  
Mr. Craig Scott [cbscott@usyd.edu.au](mailto:cbscott@usyd.edu.au)

Encl. Approved Participant Information Statement  
Approved Participant Consent Form  
Approved Participant Consent Form – Parent/Guardian  
Approved Questions for Focus Groups  
Approved Pre-Focus Group Questionnaires

**Appendix 11: Head Master, Barker College, approval to conduct research**

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**BARKER COLLEGE**

FROM THE HEADMASTER  
Dr Roderic Kefford, F.A.C.E.

30 January 2009

Mr R Forster  
735 Barrenjoey Road  
AVALON NSW 2107

Dear Mr Forster

**Re: Jazz Research at Barker College**

Thank you for your letter of 28 January seeking my approval for you to undertake a research project "Chord/Scale Theory and its Application to Improvisation for Music Students at Secondary Schools" here at Barker College.

I understand that you have discussed your project with Dr Brad Merrick, our Director of Research in Learning, in relation to the design and implementation of this study.

I am pleased to approve your undertaking this research here at Barker College.

I wish you all the very best with your study.

With every good wish,

Yours sincerely

Roderic Kefford AM  
HEADMASTER

## Appendix 12: Parental Consent Form



**The University of Sydney**

**Conservatorium of Music**

ABN 15 211 513 464

**Associate Professor Peter Dunbar-Hall**

Room 2130  
 Building C41  
 University of Sydney NSW 2006  
 AUSTRALIA  
 Telephone: +61 2 9351 1334  
 Facsimile: +61 2 9351 1287  
 Email: [p.dunbar-hall@usyd.edu.au](mailto:p.dunbar-hall@usyd.edu.au)  
 Web: [www.usyd.edu.au/](http://www.usyd.edu.au/)

**PARENTAL (OR GUARDIAN) CONSENT FORM**

I, ..... agree to permit ....., who is  
 aged ..... years, to participate in the research project –

TITLE: Chord/Scale Theory and its Application to Improvisation for Music Students at Secondary Schools.

In giving my consent I acknowledge that:

1. I have read the Information Statement and the time involved for my child's participation in the project. The researcher/s has given me the opportunity to discuss the information and ask any questions I have about the project and they have been answered to my satisfaction.
2. I understand that I can withdraw my child from the study at any time without prejudice to my or my child's relationship with the researcher/s now or in the future.
3. I agree that research data gathered from the results of the study may be published provided that neither my child nor I can be identified.
4. I understand that if I have any questions relating to my child's participation in this research I may contact the researcher/s who will be happy to answer them.
5. I acknowledge receipt of the Information Statement.
6. I agree to the audio only recording of lessons and focus groups. Yes  No

Signature of Parent/Guardian

Please PRINT name

Date

Signature of Child

Please PRINT name

## Appendix 12: Parental Consent Form



**The University of Sydney**

**Conservatorium of Music**

ABN 15 211 513 464

**Associate Professor Peter Dunbar-Hall**

Room 2130  
 Building C41  
 University of Sydney NSW 2006  
 AUSTRALIA  
 Telephone: +61 2 9351 1334  
 Facsimile: +61 2 9351 1287  
 Email: [p.dunbar-hall@usyd.edu.au](mailto:p.dunbar-hall@usyd.edu.au)  
 Web: [www.usyd.edu.au/](http://www.usyd.edu.au/)

**PARENTAL (OR GUARDIAN) CONSENT FORM**

I, ..... agree to permit ....., who is  
 aged ..... years, to participate in the research project –

TITLE: Chord/Scale Theory and its Application to Improvisation for Music Students at Secondary Schools.

In giving my consent I acknowledge that:

1. I have read the Information Statement and the time involved for my child's participation in the project. The researcher/s has given me the opportunity to discuss the information and ask any questions I have about the project and they have been answered to my satisfaction.
2. I understand that I can withdraw my child from the study at any time without prejudice to my or my child's relationship with the researcher/s now or in the future.
3. I agree that research data gathered from the results of the study may be published provided that neither my child nor I can be identified.
4. I understand that if I have any questions relating to my child's participation in this research I may contact the researcher/s who will be happy to answer them.
5. I acknowledge receipt of the Information Statement.
6. I agree to the audio only recording of lessons and focus groups. Yes  No

Signature of Parent/Guardian

Please PRINT name

Date

Signature of Child

Please PRINT name

## Appendix 13: Participants Information Statement



**The University of Sydney**

Conservatorium of Music

ABN 15 211 513 464

**Associate Professor Peter Dunbar-Hall**

Room 2130  
 Building C41  
 University of Sydney NSW 2006  
 AUSTRALIA  
 Telephone: +61 2 9351 1334  
 Facsimile: +61 2 9351 1287  
 Email: [p.dunbar-hall@usyd.edu.au](mailto:p.dunbar-hall@usyd.edu.au)  
 Web: [www.usyd.edu.au/](http://www.usyd.edu.au/)

**PARTICIPANT INFORMATION STATEMENT**  
**Research Project**

**Title: Chord/Scale theory and its Application to Improvisation for Music Students at Secondary Schools.**

**(1) What is the study about?**

This project seeks to investigate the relationship of scales to chords in jazz, commonly known as chord/scale theory, in the teaching of improvisation to elective music students in preparation for their HSC exams.

**(2) Who is carrying out the study?**

The study is being conducted by Raymond Foster and will form the basis for the degree of Master of Music (Performance) at The University of Sydney under the supervision of Associate Professor Peter Dunbar-Hall.

**(3) What does the study involve?**

I will conduct no more than 10, one hour classes spread over one semester. These will be divided into section headings accompanied by class notes covering each topic as it is introduced and will be followed by a questionnaire and a focus group discussion conducted in class time at the school. Lessons and focus groups will be audio recorded (not video) for research purposes and no individual student will be identified.

**(4) How much time will the study take?**

Questionnaires and focus groups will be during lesson time and will require no more than one hour.

**(5) Can I withdraw from the study?**

Being in this study is completely voluntary - you are not under any obligation to consent and - if you do consent - you can withdraw at any time without affecting your relationship with the University of Sydney. Your decision whether or not to permit

your child to participate will not prejudice you or your child's future relations with the University of Sydney. If you decide to permit your child to participate,

You are free to withdraw your consent and to discontinue your child's participation at any time without affecting your relationship with the University of Sydney. You may withdraw from the study at any time if you do not wish to continue. Any audio recording will be erased and the information provided will not be included in the study.

**(6) Will anyone else know the results?**

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. A report on the subject maybe submitted for publication, but individual participants will not be identifiable in such a report.

**(7) Will the study benefit me?**

No.

**(8) Can I tell other people about the study?**

Yes.

**(9) What if I require further information?**

When you have read this information, Ray Forster will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact, Ray Forster- 99185987 (jazz piano teacher at Barker, or Simon Smith- 98478214 (assistance director of music, Barker College, Hornsby).

**(10) What if I have a complaint or concerns?**

**Any person with concerns or complaints about the conduct of a research study can contact the Manager, Ethics Administration, University of Sydney on (02) 9351 4811 (Telephone); (02) 9351 6706 (Facsimile) or [gabriody@usyd.edu.au](mailto:gabriody@usyd.edu.au) (Email).**

*This information sheet is for you to keep*

## Appendix 14: Participants Consent Form



**The University of Sydney**

Conservatorium of Music

ABN 15 211 513 464

**Associate Professor Peter Dunbar-Hall**

Room 2130  
 Building C41  
 University of Sydney NSW 2006  
 AUSTRALIA  
 Telephone: +61 2 9351 1334  
 Facsimile: +61 2 9351 1287  
 Email: [p.dunbar-hall@usyd.edu.au](mailto:p.dunbar-hall@usyd.edu.au)  
 Web: [www.usyd.edu.au/](http://www.usyd.edu.au/)

**PARTICIPANT CONSENT FORM**

**Chord/Scale Theory and its Application to Improvisation for Music Students at Secondary Schools.**

I, ..... agree to participate in this research project , I am in year.....

I acknowledge that:

1. I have read the Information Statement and the time involved for my participation in the project. The researcher/s has given me the opportunity to discuss the information and ask any questions I have about the project and they have been answered to my satisfaction.
2. I understand that I can withdraw from the study at any time without prejudice to my relationship with the researcher/s now or in the future.
3. I agree that research data gathered from the results of the study may be published provided that I am not be identified.
4. I understand that if I have any questions relating to my participation in this research I may contact the researcher/s who will be happy to answer them.
5. I acknowledge receipt of the Information Statement.
6. I agree to the audio only recording of lessons and focus groups. Yes  No

Signature of Student

Please PRINT name

Date

Appendix 15: *Blue Bossa* C part

## Blue Bossa

Kenny Dorham

Cm<sup>6</sup> Fm<sup>7</sup>  
 5 Dm<sup>7b5</sup> G<sup>7alt</sup> Cm<sup>6</sup>  
 9 E<sup>b</sup>m<sup>7</sup> A<sup>b</sup>7 D<sup>b</sup>maj<sup>7</sup>  
 13 Dm<sup>7b5</sup> /G<sup>7alt</sup> Cm<sup>6</sup> G<sup>7alt</sup>

## SOLO SCALES

1 C Aeolian Minor 8 bars  
 1 Db Major Scale 4 bars C Aeolian 4 bars



Appendix 16: *Blue Bossa* Bb part

**Blue Bossa**

Kenny Dorham

Bb part

The musical notation for the Bb part of *Blue Bossa* consists of four staves of music in 4/4 time, starting with a key signature of two flats (Bb). The notes are as follows:

- Staff 1: Notes G4, A4, Bb4, A4, G4, F4, E4, D4. Chords: Dm<sup>6</sup> (over G4), Gm<sup>7</sup> (over G4).
- Staff 2: Notes G4, A4, Bb4, A4, G4, F4, E4, D4. Chords: Em<sup>7b5</sup> (over G4), A<sup>7alt</sup> (over G4), Dm<sup>6</sup> (over G4).
- Staff 3: Notes G4, A4, Bb4, A4, G4, F4, E4, D4. Chords: Fm<sup>7</sup> (over G4), B<sup>b7</sup> (over G4), E<sup>b</sup>maj<sup>7</sup> (over G4).
- Staff 4: Notes G4, A4, Bb4, A4, G4, F4, E4, D4. Chords: Em<sup>7b5</sup> (over G4), A<sup>7alt</sup> (over G4), Dm<sup>6</sup> (over G4), A<sup>7alt</sup> (over G4). The staff ends with a repeat sign.

## SOLO SCALES

1 D Aeolian Minor 8 bars

The D Aeolian Minor scale is shown in a single staff with a key signature of two flats (Bb). The notes are: D4, E4, F4, G4, A4, Bb4, C5, D5. The scale is repeated for 8 bars.

1 Eb Major Scale 4 bars      D Aeolian 4 bars

The Eb Major scale is shown in a single staff with a key signature of three flats (Bbb). The notes are: Eb4, F4, G4, Ab4, Bb4, C5, D5, Eb5. It is repeated for 4 bars.

The D Aeolian scale is shown in a single staff with a key signature of two flats (Bb). The notes are: D4, E4, F4, G4, A4, Bb4, C5, D5. It is repeated for 4 bars.

Appendix 17: *Blue Bossa* Eb part

**Blue Bossa** Kenny Dorham

Eb part

Am<sup>6</sup> Dm<sup>7</sup>

5 Bm<sup>7b5</sup> E<sup>7alt</sup> Am<sup>6</sup>

9 Cm<sup>7</sup> F<sup>7</sup> B<sup>b</sup>maj<sup>7</sup>

13 Bm<sup>7b5</sup> /E<sup>7alt</sup> Am<sup>6</sup> /E<sup>7alt</sup>

## SOLO SCALES

1 A Aeolian Minor 8 bars

1 Bb Major Scale 4 bars

A Aeolian 4 bars

## Appendix 18: Bibliography

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**Appendix 19: Discography**

*A Night in Tunisia*, recorded by Art Blakey and The Jazz Messengers (Phillips 800 064-2)

*Blue Bossa*, The Gene Harris Quartet, Black and Blue (Concord 4123)

*CC Rider* sung by Jerry Lee Lewis, Rock 'n Roll Greats (onn32)

*CC Rider* The Gene Harris Quartet, Black and Blue (Concord 4123)

*St Louis Blues*, Maxine Sullivan, Romance of Jazz (Compact Music GmbH. Luxembourg. 10014)

**Appendix 20: Recordings from the lessons**

- Tr1: *Heart and Soul*, with unaltered and altered harmonies: lesson 2
- Tr2: *Satin Doll*, understanding key centres: lesson 3
- Tr3: D Dorian, chord notes and approach notes: lesson 4
- Tr4: Class and solo vocals using ‘call and response’ on the Blues: lesson 5
- Tr5: Individual instrumental solo on the Blues: lesson 5
- Tr6: *Bluesette*, altered harmonies on the Blues: lesson 6
- Tr7: *Blue Bossa*, using common scales to improvise: lesson 7
- Tr8: *Blue Bossa*, student solo using two common scales: lesson 8