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# Classical & Jazz Saxophone

Two Faces of the Same Instrument

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<p>This thesis examines the saxophone and its use in classical and jazz music.</p> <p>First I introduce the history of the instrument, the technical aspects of playing, the sound effects, the daily practice and the repertoire.</p> <p>Second, I compare the classical and jazz styles of playing the saxophone in order to identify the differences and similarities between them.</p> <p>Finally, I discuss if it is possible and useful for a classical player to learn both styles and what kind of difficulties he or she could face when doing so.</p>	
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## 1 Introduction

When I started thinking about interesting subjects for my final project, I had lots of ideas in my mind. I thought I could have written, for example, about the history of the saxophone, about a particular player or even about one of the works written for the saxophone, but in the end none of these subjects really satisfied me completely. Then I started thinking about my own situation as a student of both classical and recently jazz saxophone, and I realized that it could be really interesting and useful for me as a musician and a teacher to analyze the main characteristics of these two ways of playing. This way I could find out what kinds of differences and similarities there are between these two idioms, and better understand if it is possible and useful for a saxophonist like me with a mostly classical music background, to professionally develop both of these styles of playing.

The purpose of this study is also to find out the differences between some elements of playing the classical and jazz saxophone. I also wanted to explore the possibilities for cross-over between the styles. For example, if some passages of classical pieces could be used in jazz solos as well as exercise books, or if the jazz players' routine of practicing scales and chords could be used by classical saxophonists in order to improve their knowledge of harmony.

Analyzing the jazz saxophone and the classical saxophone is a consequence of the fact that I am seriously interested in learning to play both classical and jazz saxophone professionally and therefore I would like to know more about this subject.

From the point of view of a classical saxophonist, there are many reasons why I needed to extend my knowledge to jazz music. The first one concerns me and the idea of a musician and a teacher I have in mind. Since the beginning of my professional studies, first with the clarinet at the conservatory of Lucca and then with the saxophone in the Music Department at Metropolia, my music education has been about classical music. I have always loved classical music, but as an active player I have also been aware of other styles too. I have always envied the capacity of jazz musicians to improvise and to express their own feelings and musical ideas through music and in that way their capacity of making their music more original. Before starting to study jazz music, I felt I could

not really play my instrument, even though my technical skills and all the other aspects connected to sound production and musicality were improving. I was so tied to sheet music that I was unable to play anything without it. In other words, I could not create music by myself. This is a fact that concerns the classical way of education in general. In my opinion, putting so much energy into playing other people's music according to certain stylistic conventions could limit the creativity and imagination of the students. For this reason I started to study jazz.

The second reason is about the saxophone and its use in music. Throughout its history the instrument has been used in many different musical genres and styles like ethno music, rock and Latin music, but it has probably been used the most both in classical and jazz music. Since the development of the classical and the jazz saxophone started almost at the same time, I thought that maybe the pioneers of the instrument (which was only 80 years old in 1920), both in classical and jazz, have influenced each other in developing some elements of playing. Actually the first confirmation I had of that was when I got interested in jazz saxophone: the practice and production of harmonics, for example, is useful and similar in both genres, but I will talk about this later on. However, because of the importance of the saxophone in jazz music, as a classical saxophonist and classical saxophone teacher, I have always thought it might be useful to know a little bit about jazz music as well.

The third reason is related to the work opportunities that saxophonists usually have. Due to its late invention, the saxophone was not used by the great composers of the 18<sup>th</sup> and the 19<sup>th</sup> centuries. Moreover the saxophone does not have a permanent position in the traditional symphony orchestra, because opera houses and symphony orchestras often perform music of the 18<sup>th</sup> and 19<sup>th</sup> centuries. Usually, in an orchestra, saxophonists are hired if needed, and this limits the opportunities of finding a permanent job as a saxophonist. Nonetheless, during the 20<sup>th</sup> century the saxophone was used a lot in what is usually called light music, a vast repertoire of music whose composers range from Robert Russell Bennet to Leonard Bernstein, music that is often performed in the theatre and in musicals. In addition, saxophonists can also work as session musicians. These players are asked to perform and record different kinds of music. Those who choose to

work as session musicians, need the abilities to sight-read, improvise over a chord progression and to phrase in the jazz style, but also to perform in a classical style.

Also, as a teacher who has knowledge of both classical and jazz music, you can really give the students, especially those who are in their first years of study, a wider view of the saxophone's possibilities and help them to find their own path in the music field.

Finally, as a conclusion to my introduction, I would like to make a few clarifications about jazz and classical music and how I intend to refer to them when I mention them.

As with any well-known artistic discipline, in order to be learned and performed well, jazz needs to be studied and developed through a particular method. This includes, for example, listening to repertoire, imitation, transcribing and analyzing solos of great players, and daily practice on the instrument including scales, chords, etc.

It is difficult to say precisely what jazz music and what classical music are, because both of them are categories that include a large number of sub-genres. To simplify, I will refer to jazz music as a style that has such characteristics as the use of swung notes, blue notes, ghost notes, polyrhythms, syncopation, and of course improvisation. I do not mean to refer to jazz music in a reductive way, but due to the restrictions on the extent of this research, I have to avoid getting too deeply into the sound, the harmonies and the characteristics of phrasing in different jazz styles. I will use the same idea with the word classical music: not referring to any specific era, but referring to music from the late 19<sup>th</sup> to the early 21<sup>st</sup> century performed by classical ensembles in classical contexts, ranging from the late Romantic era that coincides with the invention of the saxophone and the present day.

Jazz phrasing is different from the classical way of phrasing. It is quite difficult to give a definition of jazz phrasing, as it is not possible to learn jazz phrasing from a book. Jazz phrasing has changed throughout the years and jazz players have preferences for different variations. Some players like Dexter Gordon have a really “laid back” rhythmical conception that gives the listeners the impression that the player is always behind the beat. Some others, like Joe Henderson, have sophisticated rhythmical ideas and they are moving back and forward in relation to the beat, so that sometimes they play a bit

behind the beat, sometimes precisely on the beat, and sometimes pushing the tempo forward and thus creating a feeling of rushing. However, jazz phrasing tends to emphasize the “off-beats” which gives the music a grooving feeling. For instance, when most classical players play a C major scale up and down, the rhythm will be clear and steady. The same scale played by jazz musicians will sound rhythmically flexible and swinging. The jazz phrasing comes from a long tradition and has been shaped by the blues style, folk music, ragtime and the swing, to name a few. According to most jazz musicians the only way to learn jazz phrasing, is by listening and imitating the jazz masters. In jazz music the rhythm is often the most important thing, even more than the notes. You can play all the notes you want and resolve harmonically perfectly over chord progressions, but if there is not a good feeling of rhythm supporting the whole thing, it will not sound like jazz.

In music there are different types of improvisation. In this research, when I use the words “improvising” or “improvisation”, I will only refer to the jazz type. Unfortunately many parts of my research can be fully understood only by those who have a basic knowledge of jazz harmony.

In my study, I introduce the saxophone in its historical context in chapter two. I cover its invention, influential soloists and repertoire. In chapters three and four, I analyze some technical aspects of playing the saxophone, comparing the instrument’s set-up, embouchure, sounds and other practical things in order to find similarities and differences between the two styles. In chapter five, I discuss saxophonist’s daily practice routines in order to find out differences and similarities between the methods and the exercises. In chapter six I briefly discuss how jazz music influenced classical composers and analyze if jazz musicians have used classical elements in their solos or compositions. Finally I conclude my study by reflecting on and analyzing the knowledge that I obtained during the course of my investigation.

## 2 The History of the Saxophone

### 2.1 The 19<sup>th</sup> Century

The saxophone is generally associated with jazz music, because it has become an icon of the genre over the years. However, when it first was presented to the public at the Paris Conservatory in 1842, the audience included other musicians as well as the following composers: Berlioz, Habeneck, Spontini, Auber and Donizetti. Berlioz, in particular, was a good friend of Adolphe Sax, the inventor of the saxophone, and he also wrote a few articles, in the highly regarded *Journal des débats*, about Adolphe Sax and his invention. In the fertile musical life of Paris, the instrument's popularity rose, making a wonderful impression on those who heard it for the first time. In 1842, Berlioz, proclaimed the sound of the saxophone to be incomparable. In his *Traité général d'instrumentation* of 1844, Kastner spoke of "the nobility and beauty of its timbre". In 1848, Rossini said, "this is the most beautiful sound I have ever heard!" and Liszt declared that "the ensemble has a really magnificent effect" (Liley 1996, 16).

Sax hired several renowned musicians to travel around Europe to demonstrate the instrument in concert. Through the performances of Mayeur, Souallé (who travelled in India, Australia and China, performing many of his own compositions for saxophone) and Wuille (credited with the first saxophone solo performance in the United States in 1853), the saxophone spread to other countries and increased in popularity. Around 1847 the saxophone was introduced in the Garde Républicaine assuring the instrument a continuing presence in the French army bands; and in 1850 the saxophone was also accepted in Spanish and English bands. In 1857, Sax was asked to introduce a saxophone class in the Paris Conservatory, where he taught until the war of 1870. (Liley 1996, 1-19.)

### 2.2 The 20<sup>th</sup> Century

By the end of the 19<sup>th</sup> century, the saxophone had already achieved great popularity; and at the beginning of the 20<sup>th</sup> century the instrument was also introduced in German Military Bands and elsewhere in Europe. In the United States the saxophone's popularity

was also growing, and the Gilmore and Sousa show bands had a primary role in presenting the saxophone to a large audience.

The 20<sup>th</sup> century marks a turning point in the history of both jazz and classical saxophone, with the birth of some of the most outstanding soloists, the improvement in the playing technique and the improvement in the mechanics of the saxophone.

By the end of the 19<sup>th</sup> century, the saxophone had reached an extraordinary level of popularity for a 50-year-old instrument. In classical music, however, the saxophone made only occasional appearances until the beginning of the 20<sup>th</sup> century. Although Sax himself was a very prolific composer, writing over 200 compositions for saxophone and opening his own publishing house in Paris, and although there were also other composers who wrote works for saxophone and piano (J.Arban, J. Demersseman, H. Klosé, J.B. Singelée, L.Chic, J.N. Savari), no composer of international caliber had written solo works for the saxophone in the first 60 years of its existence. The situation in the orchestral context was quite similar. In the *Bulletins of the Association des Saxophonistes de France*, Jean-Marie Londeix affirmed, “composers of more than 2000 operas, ballets and symphonic works had by then (1983) included parts for one or more saxophones (Londeix 1983-84). In the *Cambridge Companion to the Saxophone*, Stephan Trier writes, “Only a very small number of these works were written between 1850 and 1900” (Trier 1998, 101). However, some composers did write parts for saxophone in their compositions and these works are well known and often performed: *Hamlet* (1868) and *Francoise de Rimini* (1882) by Thomas, *L'Arlesienne* (1872) by Bizet, *Sylvia* (1876) by Delibes, *Hérodiade* (1877) and *Werther* (1892) by Massenet (Trier 1998, 101-108).

The first 20 years of the 20<sup>th</sup> century did not produce much repertoire for the saxophone and still the world's greatest composers did not grant enough attention to the saxophone family. Stephen Trier suggests that the reason could be that the saxophone had earned a “bad” reputation of being an instrument that is easy to play (Trier 1998, 102). The fact that many amateur players could easily play popular tunes on the saxophone, somehow gave the saxophone an image of a popular music instrument barring it from use in the symphony orchestra. However, it is important to mention that the “saxophone lady” of Boston, Elise Boyer Hall, a French-American amateur saxophonist commissioned many

works for saxophone. Generally speaking these works, although well known, are not among the most important compositions for saxophone. The best known composer in this group was Claude Debussy, whom Elise Hall commissioned to compose a piece for saxophone and orchestra, which resulted in his *Rhapsody* for saxophone and orchestra. The prejudice towards the saxophone didn't last long and finally composers like Gershwin, Hindemith, Prokofiev, Copland, Berg, realized the qualities of the instrument and wrote orchestral parts including the saxophone.

The 20<sup>th</sup> century is closely connected to the figures of some outstanding soloists that influenced the development of the saxophone and its repertoire in both classical and jazz music.

Rudy Wiedoeft (1893-1940) became famous around 1910 as a saxophone virtuoso. His style of playing was influenced by the ragtime of those years, but his technical skills and sensitive playing, surely did much to popularize the instrument. He made over 300 records and composed a lot of music for the instrument. Wiedoeft was probably the first player to introduce such playing techniques as “slap tonguing”, “false fingering”, “double tonguing” and the “laugh”. This is largely relevant, because those techniques are essential in today's playing (jazz and classical), and a large number of compositions require the use of these techniques.

Marcel Mule (1901-2001) was one of the greatest classical saxophone players of all time, along with Sigurd Raschèr. As a child, Mule also played violin and piano. He studied with several classical musicians, but he was also very active in the Parisian jazz scene of the 1920s. He became a soloist in the Garde Républicaine and was asked to perform in many concerts and at the opera. Mule became the founder of the French Saxophone School and brought a “revolution” to the playing technique concerning the embouchure, vibrato, finger technique, intonation, breathing technique, tonguing technique and sound emission. He inspired composers such as Bozza, Milhaud, Deseclous, Glazounov, Tomasi and was a central figure in the development of the classical saxophone repertoire. Many pieces were written for him, premiered by him, and arranged by him. Mule taught in the Paris Conservatory from 1942 to 1968 being the second saxo-

phone teacher after Adolphe Sax. He was the teacher of outstanding soloists and future teachers such as Jean-Marie Londeix, Daniel Deffayet, Guy Lacour and many others.

Sigurd Raschèr (1907-2001) was also a central figure in the development of the classical saxophone. Born in Germany he lived most of his life in the United States<sup>1</sup> where he became one of the world's outstanding soloists. He performed with the Boston Symphony orchestra, the New York Philharmonic Orchestra, the Philadelphia Orchestra and the Cleveland Orchestra. As did Mule, Raschèr also inspired many composers: Milhaud, Ibert, Glazounov, Husa, Dahl and many others.

Raschèr's own style was different from the style of his colleague Mule. His idea of sound was based on his desire to stay close to Adolphe Sax's original intention and to do so he used to perform on instruments and mouthpieces modeled closely upon Sax's own (Dryer-Beers 1998, 42).

Raschèr was a pioneer of the *Altissimo* register. In 1930 "he demonstrated that an advanced player can achieve a range of four octaves on the saxophone, despite the fact that few players at that time ever played beyond the conventional range of two and a half octaves" (Wikipedia 21/04/2013). He encouraged the composers to write parts for the saxophone using the *Altissimo* register and also jazz players were able to explore new possibilities by using the *Altissimo* register. Raschèr taught at the Manhattan School of Music, at the University of Michigan and at the Eastman School of music. His book "*Top Tones*" is essential for developing the *Altissimo* register.

In the field of jazz the saxophone has evolved rapidly and continuously, due, at least partially, to the fact that because the jazz language has been changing constantly. Since the introduction of the saxophone in jazz music around 1900 until the present, all the great players have followed their predecessor's ideas and styles and revised them into something new and personal. From this point of view, it would be necessary to list all the players who marked the history of the saxophone from Sidney Bechet to Michael Brecker through Charlie Parker, Sonny Rollins, Joe Henderson, John Coltrane, Cannon-

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<sup>1</sup> When Hitler rose to power in 1933 Raschèr left Germany to Denmark and then Sweden. After a career as a soloist touring Europe, he finally moved to the United States in 1939.

ball Adderley and so on, but it would become a huge work, and besides this is not a research on jazz history. So, I will just introduce those players who are particularly important concerning the introduction of the saxophone in jazz music.

Sidney Bechet (1897-1959) grew up in New Orleans where he played mostly clarinet in various bands around the city. He discovered the unusual straight soprano saxophone during a tour in Europe around 1920. His style was intense and passionate; his sound was quite large and massive and he had a wide vibrato that was common for clarinetists of that age. Bechet had a good ability on the instruments and was able to improvise in both individual and collective improvisation.

Coleman Hawkins (1904-1969) was the first of the “three tenors” (the other two are Young and Webster) who marked a turning point in the history of the jazz saxophone. As a young player he was influenced by Rudy Wiedoeft’s playing of the C melody saxophone. Hawkins took some of that virtuosity and tried to transfer it to the tenor saxophone. He developed a big sound that made him the voice to imitate and used a wide, large and fast vibrato. Coleman developed a fluid and legato style to playing, imitative of the trumpet and opposite to Wiedoeft's staccato style. Hawkins’ ability to improvise was unique at that time: “He would develop solos from single phrases and was very adept at incorporating sequential patterns as development figures, moving effortlessly through harmonic changes” (Ingham 1998, 127). Coleman's contribution to jazz saxophone and jazz music is so important that it has been a model for all the next generations of musicians. For example, Miles Davis once said: “When I heard Hawk, I learned to play ballads” (Berendt 1976).

Lester Young (1907-1959) also was influenced by the C melody saxophone but as played by Frankie Trumbeauer. Unlike Coleman who took the sound of the C melody saxophone and adapted it to the tenor saxophone, Young took the C melody sound and re-created it on the tenor. For this reason, at the beginning of his career he was often criticized and many people said he had an *Alto* sound. However, Young brought a further revolution in jazz saxophone playing and his style was entirely opposite to the style of Hawkins. Young introduced a sophisticated conception of time:

“He used silence as a structural device and often ran his phrasing across bar lines and against the usual accepted phrase lengths. Subtle rhythmic anticipations or delays and occasional dissonant intervals added to the tension in the improvised line. He used a short simple motif to develop his solos, and produced phrases around correct and alternative fingerings for the same and adjacent notes, providing lines of colour” (Ingham 1998, 129).

In the use of vibrato Lester was very innovative: he used it only when required and his vibrato was very soft and relaxed.

Ben Webster (1909-1973) started his musical studies with piano and violin. Later he was introduced to the saxophone by Budd Johnson who taught him the basics of saxophone playing. During his career he performed as a leader and as a sideman in the jazz orchestras of Ellington and Hampton, as well as in several jazz groups. At the beginning Webster’s style was influenced by Coleman Hawkins, but during his time in Ellington’s orchestra he developed a personal style. He had a raspy, virile sound when playing fast tempos and a gentle, beautiful sound when playing ballads. These two faces of his sound earned him the nickname of “The Brute and the Beautiful”. Webster was the first saxophonist to use the growl technique and a pioneer of subtones.

### 3 Classical and Jazz Saxophone: Technical Aspects

In this chapter I analyze the practical elements of playing the saxophone, or in other words, what is behind the production of the sounds and the development of the technique.

When listening to a jazz saxophone and a classical saxophone, the first thing you notice is the difference in sound. Actually, especially the jazz saxophone can have many different kinds of sounds, so it is difficult to give a specific description of them. In general, jazz saxophonists tend to have a timbre that changes in different registers; the lower tone is “fuzzier, the middle is clearer and the high register is thinner and ringier” (Wetzel 2005, 36). Classical saxophonists, in order to be able to perform with other musicians in an orchestra, for example, need to have an even tone and timbre in all registers. The sound is relatively dark, ringy and clear, and the intonation is perfect. Factors accounting for these differences are the embouchure, the set-up of the mouthpiece and the instrument itself.

#### 3.1 The Mouthpiece

The mouthpiece and its use in combination with the reed and the ligature, is often the most critical piece of equipment of any saxophonist, both in classical and jazz music. In combination with breathing and embouchure, the mouthpiece has a big influence on the timbre. Mouthpieces are made out of different materials and there can be differences concerning the tip opening, length of lay, baffle heights, bore and chamber size and rail and tip thickness. The various combinations of the materials, opening, length, chamber size and the presence or absence of the baffle will have a strong impact on the timbre. Through development, and in order satisfy the musicians’ wishes, the mouthpiece manufacturers have introduced several new options, and nowadays there is in fact a vast range of choices. In jazz music saxophonists are allowed to select their own mouthpiece according to their ideal sound. However, in classical music, the choices are limited to a certain number of models according to the sound characteristics of a certain saxophone school, for example, the French saxophone school. The most common mouthpieces used in classical music (French school) are the Vandoren brand (models: (A/T/S/B) 25, 27, 28) or the Selmer brand (C\*, C Soloist, C\*\* Soloist). These mouthpieces, because of

their moderate tip opening and particular structure of the chamber, help the players to control the intonation, to have a pure sound, clean and fast tonguing and good control of dynamics. (Roach 1996, 89-90.)

Figure 1 describes the anatomy of a saxophone mouthpiece

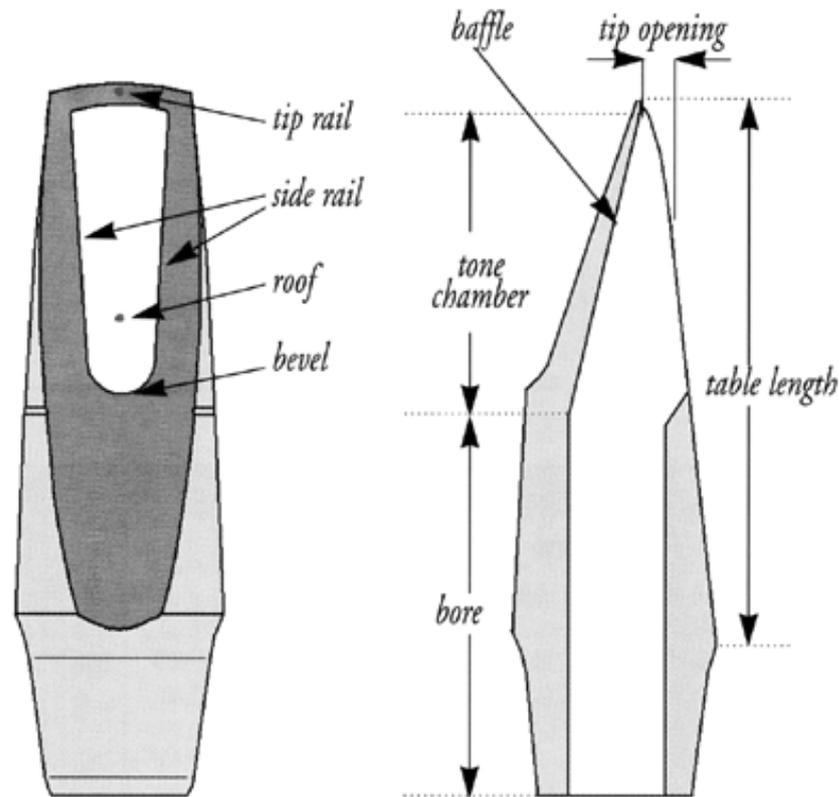


Figure 1 The Mouthpiece Chart (<http://www.goshen.edu/physics/2010/10/26/physics-of-music%20%80%94matthew-rody/>).

### 3.2 The Embouchure

The embouchure, i.e., the combination of lips, teeth, jaw and facial muscles controlling the mouthpiece and reed, is probably the most important aspect of playing the saxophone. It defines, together with the mouthpiece, the timbre, quality, depth and color of the sound. The embouchure can be different in all genres and also in the same genre it might be different. However, everybody seems to agree that, the biggest difference between the classical and the jazz embouchure is the position of the lower lip. In classical playing it is more common for the lower lip to be gently curved over the lower teeth giving the steadiness necessary to control the pitch, the sound and articulation in that

style. On the other hand, in jazz music, on the contrary, the lower lip is turned outside which means that the reed is much more exposed in the mouth, but which actually helps to create a brighter sound. In jazz music the embouchure is also very adjustable and often the jazz players adjust their embouchure as they move from one register to another in order to get different kinds of sound effects, especially subtones and accents. In classical saxophone the embouchure is formed by pronouncing “öö” and theoretically this position should be the same in all the registers. In reality, also classical players have to adjust their embouchure in different registers in order to be able to play for instance different dynamics, *pianissimo* (especially in the low register) or overtones. This kind of embouchure guarantees better intonation. (Roach 1996, 88-89.)

Figure 2 a/b illustrate a classical and a jazz saxophone embouchure.



Fig. 2a. A classical saxophone embouchure (Angeli 2013).



Fig. 2b. A type of jazz saxophone embouchure (Angeli 2013).

### 3.3 The Instrument

The saxophone itself is also a delicate part of the player’s equipment. Almost all professional players have a professional instrument, but they have different opinions about the influence of the instrument on the quality of the sound. Some assert that the instrument has a big influence upon the sound and that to achieve a certain kind of sound you should use a specific instrument; others think that the kind of instrument used has a partial effect on the final sound and still others think that the instrument has a relative impact upon the final sound. Personally I can’t say who is right and who is wrong because to me in all the different opinions there is a bit of truth. The only thing I can say is that

in jazz music some very old horns are used even though the intonation is not so good nor the mechanism. In classical music players tend to use relatively new instruments that have really good intonation and mechanic. All the rest is up to personal opinions and taste.

## 4 Classical and Jazz Saxophone: Sounds Effects

The following points will describe some sound effects that are commonly used by saxophone players in both jazz and classical music. The only difference related to these sound effects between the styles is that a classical player needs to learn all these techniques in order to be able to perform, for example, contemporary music and to use them when the music requires, whereas a jazz player can learn them as well but decide to use them (or not) in an original way according to his or her ideal style.

### 4.1 Vibrato

Vibrato is an expressive device used by all saxophone players in almost all the genres to add resonance to a note or a phrase. There are different possibilities to produce the vibrato; however, the most used method consists of gently varying the pressure of the jaw/lower lip on the reed by moving the jaw in tiny motions up and down. Even though the technique of production is the same, the vibrato can be used in different ways. Generally in classical music, players try to have a controlled and continuous vibrato similar to string players or singers, whereas in jazz music players tend to have a vibrato that increases towards the end of the note. In contemporary repertoire the vibrato can be really different in intensity, speed and pitch. So a professional player should master different kinds of vibrato to use in various musical situations. (Horch, 1998, 80.)

### 4.2 Subtone and Accents

Subtone is the most important effect used in jazz music, even though in certain circumstances it is used in classical music as well. Subtone is when the sound of a certain note, especially in the low register of the saxophone becomes less clear, opaque, fuzzy, warm and quite windy. It is a consequence of the fact that the jazz embouchure is really adjustable. In fact, subtone is generated by the player moving the jaw back to the tip of the reed which affects the vibration of the reed. The pioneer of this technique was Ben Webster and nowadays almost all the jazz players are using subtone especially in the low register. One of the reasons why jazz saxophonists are using subtone in the low register is because it helps to play softer in piano passages. Another reason is aesthetic:

the subtones is a part of jazz style. In chapter 3.2 when talking about embouchures I mentioned that also classical players sometimes needs to adjust and move their embouchure to play, for example, pianissimo in the low register. Well this is the case: with a similar movement a classical player many times learns to play a very “light” version of the subtone in order to play pianissimo in the low register, especially on the tenor saxophone.

With a forward jaw movement instead, the player gives the reed more possibilities to vibrate and the result is a brighter and louder sound. Jazz musicians are using this effect to put accents and emphasis on certain notes during a phrase. Classical players do not really use this technique. They mostly play accents with air and the tongue. (Eriksson 2012, 76-80).

### 4.3 Ghosting

“Ghosting is the technique in which some notes in a line of regular quavers are given more weight according to the main rhythmic/harmonic structure of the phrase, and others are almost not played, or are ghosted, often using subtones” (Roach 1998, 91). Ghosting is used a lot in jazz music. By ghosting one or more notes the player is able to put emphasis on the rest of the phrase. Players have different techniques to produce ghosted notes on the saxophone. Some are using subtones; others are just fingering the note on the instrument but without consistently blowing into the instrument; and still others are blowing normally into the instrument but they place the tongue on the reed, which limits the reed vibration and produce a deaf and fuzzy sound.

### 4.4 Tonguing

Tonguing is a technique that is used by all wind players to articulate different sounds. On the saxophone the tongue touches and releases the reed. It breaks the airflow into the instrument by using this movement it is possible to create, for example, a clear beginning of the note. There are many different kinds of tonguing effects depending on, for example, where the tongue touches the reed, how much intensity the tongue uses, and whether the tongue stays over the reed or not. Unfortunately it is not possible to see what really happens inside the mouth when single reed players are using their tongue

and describe the different techniques with words. What we know for sure is that it is possible to get different kinds of articulations. A musician would have a lot of advantages by mastering all types of tonguing. If we think about how we express different emotions or feelings while talking or singing and how important the articulation of the tongue is for this purpose, it is easy to see that, since music is like a language, we would need to use the tongue in many different ways in order to articulate phrases on the saxophone.

#### 4.4.1 Slap Tonguing

Slap tonguing is a particular technique that creates a popping/slapping sound along with the note. The technique is not so easy to describe with words and not even easy to learn, but David Roach says it consists in: “laying the tongue flat on the reed prior to starting a note, and, after bringing the air pressure to the mouthpiece, smartly release the tongue in a downwards movement” (Roach 1998, 91). This sound effect is used a lot in contemporary music and some jazz saxophonists are using it as well in their solos.

#### 4.4.2 Flutter-tonguing

This sound effect is generated by the player rolling an “r” with the tongue on the top of the mouth while playing. This movement disturbs the airflow into the instrument and creates a shivering sound. (It is actually difficult to describe with words, but it is really easy to understand when hearing it). Flutter-tonguing is used a lot in modern-contemporary repertoire and in jazz music.

#### 4.5 Growl

The growl is a particular sound effect that is created by the player singing into the instrument at the same time as playing (Roach 1998, 92). The name “growl” comes from the fact that the sound that is generated is similar to an animal growling. In jazz music saxophonist Ben Webster was a pioneer of this technique and many others like Michael Brecker and Gato Barbieri have used it. In contemporary classical music, the growl has been used by many composers.

## 4.6 False Fingerings

False fingering is a particular technique that is used a lot in music for both jazz and classical saxophone.

“False fingering is happening when two (and sometimes more) fingerings produce notes which have a slight or even quite marked difference in timbre and/or pitch. These can be used for an effect. Some are based on the overtones (harmonics) and it is a good idea to practice these first”.

([www.tamingthesaxophone.com/saxophone-false-fingerings.html](http://www.tamingthesaxophone.com/saxophone-false-fingerings.html) April 20, 2013)

## 5 Classical and Jazz Saxophone: the Daily Practice

No matter how different the musical genres, the musicians' daily practice is in theory very similar. In fact anyone wanting to become a professional player, needs to develop all the aspects of playing his instrument and performing music, and in order to achieve this goal he needs to spend many hours every day practicing. However, there are differences, for instance in classical and jazz, between the methods and the materials being used. Another big difference between a classical and a jazz student is the fact that the jazz student will always be more involved harmonically in everything he does: studying, listening, reading or playing. A jazz musician is sort of an instant composer. He needs to have a great knowledge of jazz harmony, as well as a vast music dictionary including alternative scales, notes, dynamics, sound effects and rhythmical patterns. Also he needs the ability to transfer the sounds he hears in his mind to his instrument, and the capacity to listen to, to understand and to follow the other players' lines (especially the bass player's). Regarding saxophone's basic exercises (breathing, overtones, long notes) there are some that are practiced by both classical and jazz musicians using pretty much the same methods. However, it is interesting to notice that when it comes to finger technique, for example, the jazz school uses mostly scales, arpeggios, intervals and licks practiced in all keys, and in different rhythmic and harmonic combinations according to the musician's fantasy, while the classical school has nowadays many exercise books. It is actually difficult to say why. I think one of the reasons could be the fact that jazz music is mostly an "oral" tradition since jazz solos are improvised music and not written music, whereas classical repertoire has mostly been written down. From this point of view, it is quite logical to understand why in order to learn improvisation, you need to listen, imitate and transcribe music (practically use more ears than eyes). The downside of this is that most jazz musicians don't use technical exercise books.

In the following section I will describe some fundamental aspects of the saxophonist's daily practice and compare them between classical and jazz.

### 5.1 Breathing Exercises

Breathing correctly is a basic technique to learn in order to play a wind instrument. Even though there are several exercises to develop a proper breathing technique, it is

not so easy to describe them with words. When breathing and blowing into the instrument the whole body should be completely relaxed in order to avoid tension while playing. A good breathing technique should activate the diaphragm, the muscles of the lower back and the sides of the chest. If the breathing is too “high”, basically at the top part of the chest, there will not be enough support for the sound and the musician will also risk being choked by air.

A very basic exercise to learn to find the right place in the body for the breathing consists of sitting on a chair and leaning forward with your arms against your legs. While breathing in that position the air goes automatically into the “right place” and the student should feel the lower back muscles working. After breathing a few times in this position, the student should slowly get up and sit normally keeping the same feeling of the lower back muscles working and finally stand up maintaining the same breathing technique.



Lean forward while sitting and breathe in that position.



Breathe a few times and try to feel the air in the lower back.



Go slowly to a normal sitting position and maintain the same feeling of breathing.



Stand up maintaining the same feeling of breathing

Fig 3: A breathing exercise (Angeli 2013).

## 5.2 Playing Long Notes

Long notes are very useful for developing the following techniques and aspects of playing when they are practiced with concentration, listening carefully and focusing exactly on each of them in turn or in combination:

1. Breathing
2. Sound
3. Intonation
4. Vibrato
5. Dynamics
6. Tonguing

Personally when I practice long notes I always focus on something specific. When I want to develop playing dynamics, for instance, I start the note in *pianissimo* with a clear tongue attack. Then I slowly increase the volume to *forte* and then I decrease to *pianissimo* again. I try to play an even *crescendo* and I am listening that the sound never loses its pureness. Many times I also combine two or more techniques when playing long notes. I might play dynamics and add also vibrato to the sound.

Figure 4 is an example of how I could be practicing long notes. I often play the octave of the first note because it helps me to understand if the sound is even and if it has the same intonation in the different registers. I start the note in *pianissimo* with a clear tongue attack and I play vibrato to add resonance to the note. I increase the volume and I move to the upper octave in *legato*. When doing this I listen to the vibrato. It should not become wider and it should have the same frequency. The sound should be even and the notes should have the same pitch. While decreasing the volume I go back to the lowest of the note and I end the note in *pianissimo* trying to keep it as long as I can.

The image shows a musical score for Saxophone in 12/4 time. The top staff contains a single long note with a slur above it. The bottom staff shows a sequence of notes with dynamics markings: *p*, *ff*, *mp*, and *pp*. A handwritten note 'vibrato Frequency' is written below the bottom staff, with examples of vibrato frequencies:  $\frac{1}{4} 3$  or  $\frac{1}{4}$  or  $\frac{1}{4} 5$  or  $\frac{1}{4} 6$ . The word 'Anol' is written above the final notes, and 'So on' is written below them.

Figure 4: Exercise for playing long notes. The vibrato can have different frequencies on a crotchet pulse (Angeli 2013).

### 5.3 Practicing the Overtones and Altissimo Register

When a string on a string instrument or an air column in a wind instrument vibrates, the sound it produces is actually a complex pattern of sound waves consisting of many different frequencies. Vibrating as a whole it produces the fundamental or first harmonic. The fundamental is the tone of lowest frequency and because it commonly has the greatest amplitude (intensity) it is perceived as the sounding pitch. At the same time a string or air column usually vibrates in sections (e.g. halves, thirds, fourths, fifths, sixths, etc.) producing overtones or harmonics. Overtones are tones sounding at frequencies higher than the fundamental tone. As may be easily deduced from the aforementioned fractions, simple ratios are formed by the frequencies of these upper harmonics with the frequency of the fundamental (e.g. 2:1, 3:1, 4:1). Thus, the first overtone sounds an octave above the first harmonic, the second overtone sounds an octave and a fifth higher, the third overtone two octaves higher, and so on. Each succeeding overtone is closer to the preceding overtone than the preceding overtone was to the tone before it. A listener normally hears the fundamental tone clearly. With experience and concentration one may also learn to hear overtones. The relative strength or weakness of the overtones varies with different instruments and affect the tone color of the pitch. For this reason no two instruments sound alike. Among the factors contributing to the relative strength or weakness of the overtones are the material(s) from which an instrument is made, the construction of the instrument and the way an instrument is played.

The uppermost register of woodwind instruments is called *altissimo* which is Italian for very high. On the saxophone, notes higher than f<sup>##</sup>, which is considered to be the highest note in the saxophone's ordinary range, are in the altissimo register. (<http://www.britannica.com.ezproxy.uef.fi:2048/EBchecked/topic/436017/overtone>, April 21, 2013.)

The overtones and the altissimo register are nowadays a standard part of practicing for professional saxophone players.

Although there are several exercise books on how to practice the altissimo register and the overtones, the book *Top Tones for Saxophone* by Sigurd Raschèr is the most complete and used book by saxophonists. (Raschèr 1941, 1977).

The saxophone can in fact be played over the standard range of two and a half octaves. The altissimo register can either be played using special fingerings or using the overtones. Most classical players, even though they normally also practice the overtones, use special fingerings to play in the altissimo register. Jazz players are using both special fingering and overtones even though they tend to use more the overtones, mainly because they usually use older saxophones that don't have the high F# key, which is a critical key for the special fingering in the altissimo register.

The overtones are not only important for playing in the altissimo register but as Raschèr wrote in his book, “playing natural overtones on the saxophone is also part of the necessary ear and embouchure training” (Raschèr 1941, 1977, 11).

In order to play the overtones it is necessary first of all to hear the sound in the mind. After that, one has to adjust the embouchure and make adjustments to the airflow going into the instrument. Practicing overtones is important because you learn to hear the sounds and to control and adjust the embouchure and the airflow, which helps to create differently coloured sounds for different musical contexts.

Figure 5 is an example from Raschèr's book that shows the overtone progression over B $\flat$  and B $\natural$  with their fingerings.

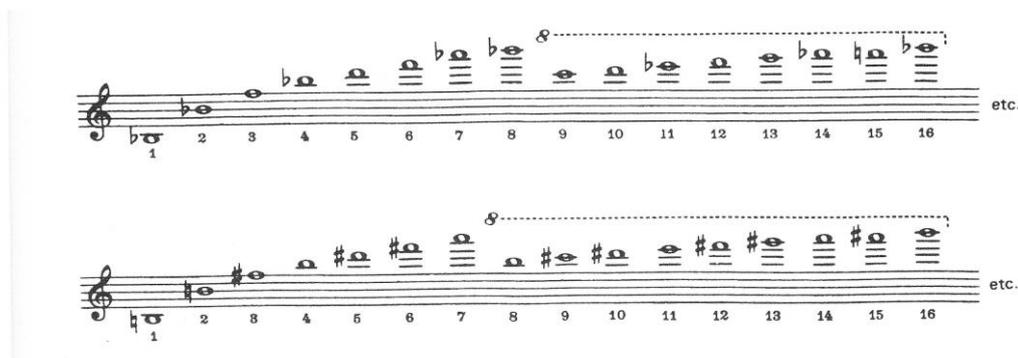


Figure 5: The overtone progression over B $\flat$  and B $\natural$  with their fingerings (Raschèr S. M., *Top-tones for the saxophone* (1941 and 1977)).

Personally, I practice overtones during my classical and jazz training. Of course I have different embouchures when I play classical saxophone and when I play jazz saxophone, but the technique to produce the overtones is very similar. In order to play overtones, I first try to hear them in my mind and then find them on the instrument by con-

trolling and adjusting the embouchure and the airflow. I have practiced the overtones for a long time already so they are not so difficult for me anymore and I can say that it is usually “easy” to play the overtones using the fingerings of B $\flat$  and B $\natural$  but more difficult using the fingerings of C, C $\sharp$ , D and so on.

#### 5.4 Practicing, Scales, Arpeggios and Intervals

Practicing scales, arpeggios and combinations of them in different intervals is the ABC of playing an instrument. I would say that all professional players have knowledge of basic scales, arpeggios and intervals. However, what is really different between a classical and a jazz player (not only saxophonists) is the amount of scales they know and the way they practice them. It is important to know that when talking about scales, arpeggios and intervals we are actually talking about music: everything we play is based on them. The scale possibilities are quite many. In fact, if we would also consider the ones that are “artificially” built it might be difficult to list them all. In any case, unfortunately, classical musicians, especially players of monophonic instruments, have very little practical knowledge of the scales other than the major, minor (melodic, harmonic and natural), octatonic (diminished) and whole tone scales. They might know them from theory courses, but still in general they are not practicing them on their instrument and they are not aware of the relations between a chord and a scale. Jazz musicians instead are always interested in learning scales, chords and intervals and understanding the relations with the harmony.

Another aspect that is different in classical and jazz is the way how the scales are practiced: classical musicians use scales and arpeggios as warming-up exercises with limited variations (mostly playing them up and down or by thirds). Jazz musicians instead are using scales, arpeggios and intervals during all their practice. They try to get as many possibilities as they can, combining different modes, combining scales, arpeggios and intervals, finding alternative scales for a certain chord, and understanding how they can harmonically resolve in cadences.

An understanding of jazz harmony is necessary in order to use scales for improvising and for playing chord changes in jazz music. One very important way for a jazz musi-

cian to acquire this understanding is to listen to and learn from the recordings of jazz masters. Recordings are useful because the same passage may be listened repeatedly.

In all musical styles, I am sure that using creativity and imagination in order to find different ways to combine notes and rhythms while practicing scales and chords can only be useful for a musician.

In my experience, it is possible sometimes also in classical music to find pieces in which the composer has used scales (blues scales, altered, pentatonic, and so on) arpeggios or note progressions typical of jazz music. For example, in many parts of the melody of the first etude of Bozza's *Twelve caprices for saxophone*, the composer has used a kind of a blues scale in different keys. When studying this etude, I noticed that it was very useful to have practiced the blues scale already before.

Jamey Aebersold in collaboration with jazz saxophonist Dave Liebman has written a book called "Scale Syllabus" that has an audio cd listing all the most important scales used in jazz with many examples of how these scales can be played.

Figure 6 is the table about the scale possibilities:

**THE SCALE SYLLABUS**

LEGEND: H = Half Step, W = Whole Step.; A = Major 7th; + or # = raise H; b or - = lower H; O = Half-diminished; -3 = 3H (Minor Third)

CHORD/SCALE SYMBOL	SCALE NAME	WHOLE & HALF STEP CONSTRUCTION	SCALE IN KEY OF C	BASIC CHORD IN KEY OF C
C C7 C- CO Co	FIVE BASIC CATEGORIES	Major	W W H W W H H	C D E F G A B C
		Dominant 7th (Mixolydian)	W W H W W H W	C D E F G A B <sup>b</sup> C
		Minor (Dorian)	W H W W W H W	C D E <sup>b</sup> F G A B <sup>b</sup> C
		Half Diminished (Locrian)	H W W H W W W	C D <sup>b</sup> E <sup>b</sup> F G <sup>b</sup> A <sup>b</sup> B <sup>b</sup> C
	Diminished (8 tone scale)	W H W H W H W H	C D E <sup>b</sup> F G <sup>b</sup> A <sup>b</sup> B C	
<b>1. MAJOR SCALE CHOICES</b>				
CA (Can be written C)	Major (don't emphasize the 4th)	W W H W W W H	C D E F G A B C	C E G B D
C	Major Pentatonic	W W -3 W -3	C D E G A C	C E G B D
CA+4	Lydian (major scale with +4)	W W W H W W H	C D E F <sup>#</sup> G A B C	C E G B D
CA	Bebop (Major)	W W H W H H W H	C D E F G A <sup>b</sup> B C	C E G B D
CA <sup>b</sup> 6	Harmonic Major	W W H W H -3 H	C D E F G A <sup>b</sup> B C	C E G B D
CA+5, +4	Lydian Augmented	W W W W H W H	C D E F <sup>#</sup> G <sup>#</sup> A B C	C E G <sup>#</sup> B D
C	Augmented	-3 H -3 H -3 H	C D <sup>#</sup> E G A <sup>b</sup> B C	C E G B D
C	6th Mode of Harmonic Minor	-3 H W H W H H	C D <sup>#</sup> E F <sup>#</sup> G A B C	C E G B D
C	Diminished (begin with H step)	H W H W H W H W	C D <sup>b</sup> D <sup>#</sup> E F <sup>#</sup> G A B <sup>b</sup> C	C E G B D
C	Blues Scale	-3 W H H -3 W	C E <sup>b</sup> F F <sup>#</sup> G B <sup>b</sup> C	C E G B D
<b>2. DOMINANT 7th SCALE CHOICES</b>				
C7	Dominant 7th	W W H W W H W	C D E F G A B <sup>b</sup> C	C E G B <sup>b</sup> D
C7	Major Pentatonic	W W -3 W -3	C D E G A C	C E G B <sup>b</sup> D
C7	Bebop (Dominant)	W W H W W H H H	C D E F G A B <sup>b</sup> B C	C E G B <sup>b</sup> D
C7 <sup>b</sup> 9	Spanish or Jewish scale	H -3 H W H W W	C D <sup>b</sup> E F G A <sup>b</sup> B <sup>b</sup> C	C E G B <sup>b</sup> (D <sup>b</sup> )
C7+4	Lydian Dominant	W W W H W H W	C D E F <sup>#</sup> G A B <sup>b</sup> C	C E G B <sup>b</sup> D
C7 <sup>b</sup> 6	Hindu	W W H W H W W	C D E F G A <sup>b</sup> B <sup>b</sup> C	C E G B <sup>b</sup> D
C7+ (has #4 & #5)	Whole Tone (6 tone scale)	W W W W W W	C D E F <sup>#</sup> G <sup>#</sup> B <sup>b</sup> C	C E G <sup>#</sup> B <sup>b</sup> D
C7 <sup>b</sup> 9 (also has #9 & #4)	Diminished (begin with H step)	H W H W H W H W	C D <sup>b</sup> D <sup>#</sup> E F <sup>#</sup> G A B <sup>b</sup> C	C E G B <sup>b</sup> D <sup>b</sup> (D <sup>#</sup> )
C7+9 (also has b9, #4, #5)	Diminished Whole Tone	H W H W W W W	C D <sup>b</sup> D <sup>#</sup> E F <sup>#</sup> G <sup>#</sup> B <sup>b</sup> C	C E G <sup>#</sup> B <sup>b</sup> D <sup>#</sup> (D <sup>b</sup> )
C7	Blues Scale	-3 W H H -3 W	C E <sup>b</sup> F F <sup>#</sup> G B <sup>b</sup> C	C E G B <sup>b</sup> D (D <sup>#</sup> )
<b>3. MINOR SCALE CHOICES*</b>				
C- or C-7	Minor (Dorian)	W H W W W H W	C D E <sup>b</sup> F G A B <sup>b</sup> C	C E <sup>b</sup> G B <sup>b</sup> D
C- or C-7	Pentatonic (Minor Pentatonic)	-3 W W -3 W	C E <sup>b</sup> F G B <sup>b</sup> C	C E <sup>b</sup> G B <sup>b</sup> D
C- or C-7	Bebop (Minor)	W H H W W H W	C D E <sup>b</sup> F G A B <sup>b</sup> C	C E <sup>b</sup> G B <sup>b</sup> D
C- A (maj. 7th)	Melodic Minor (ascending)	W H W W W W H	C D E <sup>b</sup> F G A B C	C E <sup>b</sup> G B D
C- or C-6 or C-	Bebop Minor No. 2	W H W W H H W H	C D E <sup>b</sup> F G G <sup>#</sup> A B C	C E <sup>b</sup> G B D
C- or C-7	Blues Scale	-3 W H H -3 W	C E <sup>b</sup> F <sup>#</sup> G B <sup>b</sup> C	C E <sup>b</sup> G B <sup>b</sup> D
C- A (b6 & maj. 7th)	Harmonic Minor	W H W W H -3 H	C D E <sup>b</sup> F G A <sup>b</sup> B C	C E <sup>b</sup> G B D
C- or C-7	Diminished (begin with W step)	W H W H W H W H	C D E <sup>b</sup> F F <sup>#</sup> G <sup>#</sup> A B C	C E <sup>b</sup> G B D
C- or C-b9 <sup>b</sup> 6	Phrygian	H W W W H W W	C D <sup>b</sup> E F G A <sup>b</sup> B <sup>b</sup> C	C E <sup>b</sup> G B <sup>b</sup> D
C- or C-b6	Pure or Natural Minor, Aeolian	W H W W H W W	C D E <sup>b</sup> F G A <sup>b</sup> B <sup>b</sup> C	C E <sup>b</sup> G B <sup>b</sup> D
<b>4. HALF DIMINISHED SCALE CHOICES</b>				
CO	Half Diminished (Locrian)	H W W H W W W	C D <sup>b</sup> E <sup>b</sup> F G <sup>b</sup> A <sup>b</sup> B <sup>b</sup> C	C E <sup>b</sup> G <sup>b</sup> B <sup>b</sup> D
CO#2 (CO9)	Half Diminished #2 (Locrian #2)	H W H W W W W	C D E <sup>b</sup> F G <sup>b</sup> A <sup>b</sup> B <sup>b</sup> C	C E <sup>b</sup> G <sup>b</sup> B <sup>b</sup> D
CO (with or without #2)	Bebop Scale	H W W H H H W W	C D <sup>b</sup> E <sup>b</sup> F G <sup>b</sup> G A <sup>b</sup> B <sup>b</sup> C	C E <sup>b</sup> G <sup>b</sup> B <sup>b</sup> D
<b>5. DIMINISHED SCALE CHOICES</b>				
Co	Diminished (8 tone scale)	W H W H W H W H	C D E <sup>b</sup> F G <sup>b</sup> A <sup>b</sup> B C	C E <sup>b</sup> G <sup>b</sup> A

Figure 6: The scale Syllabus (Aebersold *The Scales Syllabus* vol 26, 1982).

## 5.5 Various Studies

The scales, arpeggios and intervals may be the strong points of jazz musicians and the weak point of classical musicians, whereas with the study materials and exercises, the situation is almost the opposite. In the classical saxophone school, for instance, we have nowadays several study books for all kinds of players and for different levels. Some of the most important books, like Mule's *Forty-eight studies by Ferlings*, are meant to develop finger technique, musical phrases, dynamics, articulation, and intonations. Others like Lacour's *Twelve studies in contemporary style* have been written to study contemporary musical style, technique and sound effects. Books of exercises and pieces from the repertoire are the "tools" used by classical musicians to develop finger technique, musicality and the most important aspects related to music and performing music.

Jazz saxophonists or jazz musicians in general skilled in reading music, but most of them are not familiar with reading music especially in exercise books. It is easy to understand why: jazz cannot be learned from books. From books it is possible to learn the rules for harmony, but still the jazz musician needs to "sit at the piano" (no matter if he is a pianist or not) and listen to the sounds of all the different chords and experiment with different possibilities of notes, scales, arpeggios, and intervals. Also, most importantly, jazz phrasing and improvisation are possible to learn just by listening to, imitating, transcribing and analysing the jazz masters' works. Some editors have published books with solo transcriptions of all the most famous jazz artists (Sonny Rollins, Charlie Parker, John Coltrane and so on), but these books are mostly for amateur players. A professional player knows exactly that when transcribing a solo you not only learn the notes and the phrasing, but you also learn to listen to the harmony of the piano and the bass line. In that way jazz musicians also are learning the sounds of all the different chords, the harmonic progression and to follow the bass line.

Studying technical exercises would surely be a good influence also for jazz musicians in my opinion. In addition, in classical saxophone education there are some books like Lacour's *Twenty-eight studies on modes with limited transpositions by Olivier Messiaen*, or Bozza's *Twelve caprices for saxophone*, where the writers have presented the

scales and chords also used in jazz music in a useful and in an inspiring way for jazz musicians as well.

Figure 7 is an example from Lacour's book "*Twenty-eight studies on modes with limited transpositions by Olivier Messiaen*". Exercise n°3 uses a scale called diminished half step and the related chord is C7b9 (#9 #11).

Jazz musicians could play some bars of this exercise over C7b9 chord and resolve, for example, to F key.

MODE II - 1<sup>re</sup> Transposition  
1<sup>re</sup> Transposition

♩ = 120

3. mp

crescendo ..... poco

Figure 7: Guy Lacour "*Twenty-eight studies on modes with limited transpositions by Olivier Messiaen*" exercise 3 (Lacour 1972).

## 6 Classical and Jazz Saxophone Repertoire

When talking about jazz influences in classical music we have to be really careful. We are entering a territory that is really big and actually it would be possible to write several theses just about that. I would not want to limit my analysis to only a few examples, but I have to keep this simple and general and only refer to music that includes parts for the saxophone.

Music has continuously evolved throughout history. Composers have studied their predecessors' works and based on those works introduced changes and innovations.

At the end of the 19<sup>th</sup> century and especially during the early 20<sup>th</sup> century many “classical” composers, such as Wagner and Mahler, extended the classical harmony to the limit of its possibilities. Some composers explored atonality and others combined elements of classical harmony with elements of popular music. Many of the works by George Gershwin, Leonard Bernstein, Robert Russell Bennett, Kurt Weill and Darius Milhaud for example, are influenced by jazz rhythms, harmony and phrasing. Also some works for saxophone and piano like Denisov's Sonata, Boutry's Divertimento, Bonneau's Piece Concertante, Muczynski' Sonata op 29, Bozza's Scaramouche and others have been influenced by the jazz style.

Figure 8 is a saxophone section from “I Got Rhythm” (*Girl Crazy* by George Gershwin). The chord progression of this song became very popular in the swinging and bebop era and it got the name of “rhythm changes”.

The image shows a musical score for a saxophone section of the song "I Got Rhythm" by George Gershwin. The score is written for four parts: Alto I, Alto II, Tenor, and Baritone. The key signature is one sharp (F#) and the time signature is 2/4. The tempo is marked "Piu mosso" with a quarter note equal to 100 beats per minute. The score begins with a first ending bracket (1) and a "tutti" marking. The Alto I part starts with a dynamic of "mf" and "accented". The Alto II, Tenor, and Baritone parts start with a dynamic of "mf". The score includes various musical notations such as slurs, accents, and dynamic markings like "sf" and "fp".

Figure 8: saxophone section from “I Got Rhythm” (Frascotti, and Ronkin *The Orchestral Saxophonist* Volume 1, 1984).

The musical *West Side Story* by Leonard Bernstein is influenced by jazz music. Figure 9 is a sample of the alto saxophone part from Act I “Prologue”.

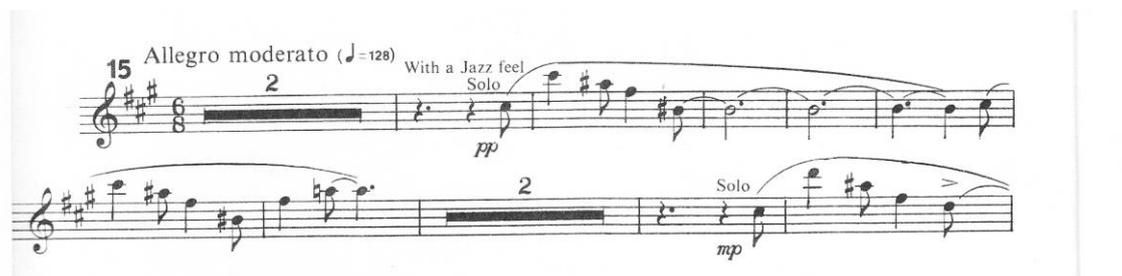


Figure 9: *West Side Story* sample of the alto saxophone part from Act I “Prologue” (Fraschetti, and Ronkin *The Orchestral Saxophonist* Volume 2, 1984).

Figure 10 is a sample of *Piece Concertante* by Paul Bonneau, a composition for saxophone and piano inspired by jazz rhythms and harmony.



Figure 10: First 10 bars from *Piece Concertante* by Paul Bonneau (1944).

If it is easy to find jazz elements in classical music and to see how classical composers have been influenced by the jazz style, it could seem more difficult to find out how classical music has influenced the jazz style’s evolution. Jazz is a combination of elements of Afro-American music and Western music. Consider the earliest jazz which we are able to study closely, jazz recorded from 1917 on, if we exclude blues structure, (which is an Afro-American creation), “the chord progressions that determine a melody’s changing relation to the key of the piece are, roughly, those that were so used in the late 18<sup>th</sup> century, the time of Haydn and Mozart” (Youngren 2000, 19). Also some chords like the Maj6 (voiced with the root and sixth in the left hand and the third and the fifth in the right hand), or the whole tone scale used in jazz are coming from the music of Debussy and Ravel.

Concerning very traditional classical music or baroque music in particular, it is interesting to notice how Bach was in a way a pioneer of jazz music. From what we know, Bach was an amazing improviser during live performances and also in general the ability to improvise was very common among baroque musicians and composers. The music of Bach, however, has many elements that are very jazzy. Let's take as an example a very basic outline in jazz: II min7 - V7 - I, with the third of the supertonic going to the third of the dominant and finally to the third of the tonic. Bach's *Three Part Sinfonia* in D major is a perfect example of this basic outline with octave displacements: G, the third of Emin7 moves to the seventh D which resolve to C#, the third of the dominant A7. C#, in turn, moves to the seventh G which resolve finally to F# the third of the tonic D.



Fig 11: Bach's *Three Part Sinfonia* in D (Ligon, *Connection chords with linear harmony* 1996).

“The compositional techniques used by J. S. Bach established a standard in terms of the principles and practices of harmonization, melodic variation, and melodic resolution that have been followed for centuries” (Hellmer, Lawn 1993, 73).

Many early jazz players such as Charlie Parker, Dizzy Gillespie and Thelonious Monk were enthusiasts of Bach's music and they had certainly studied it. Charlie Parker once said he was “impressed with Bach's patterns” and how the patterns of jazz “had already been put down, and in most cases, a lot better” (Woideck 1996, 146).

Of course, we do not know for certain how much Bach and classical music in general had influenced these musicians, but sometimes it is interesting to see how linear and harmonically precise some solos are just as in Bach's music.

Figure 12 is a sample from Parker's solo on *Dexterity* that shows how Parker uses only the scales related to the chords and how he always emphasizes the chord changes by resolving on the chord tones:

Figure 12: Parker's solo on *Dexterity*. (Ligon, *Connection chords with linear harmony* 1996).

Another example from Sonny Stitt improvising on "On The Sunny Side Of The Street" (*Sonny Side Up* by Gillespie, Stitt, Rollins recorded in 1958):

Figure 13: Sonny Stitt's solo on "On the Sunny Side of the Street" (Leonard, *The Sonny Stitt Collection*).

Just as classical music after Wagner started to become more complex harmonically, also jazz music soon started to explore different harmonic and rhythmic possibilities. Saxophonists like John Coltrane, Joe Henderson and Ornette Coleman have had a central role in developing traditional jazz into something more complex regarding harmony, rhythm and phrasing. Some of the influences on the styles of these masters are probably coming also from modern music though. In an interview for the *Saxophone Journal* (15/5 March/April 1991), for example, Joe Henderson said that as a young student, in addition to traditional jazz, he listened to Bartok, Stravinsky, Hindemith and Schönberg.

## 7 Conclusion

The process of doing research has been very interesting for me. I had the possibility to get to know my instrument better in the contexts of classical and jazz styles, and to discuss my thoughts and ideas with other musicians and teachers.

I can say that the saxophone is an instrument that plays a big part in both classical and jazz music and in their sub-genres. Also it is true that the ability to perform both classical and jazz music would provide musicians with a wider variety of work opportunities (performing and teaching). However, when I started to study and compare the sound, the embouchure, the mouthpieces, the phrasing and other aspects in detail, I understood that even though the classical and jazz saxophones are the same instrument, they are actually almost two different instruments.

Many sound effects like the growl, slap tonguing, flatter-tonguing and vibrato, are used in playing both classical and jazz saxophone and in a technically similar way. Other aspects like the embouchure, sound and phrasing are so different that it is not possible to master them unless one is really committed to doing so and willing to spend many hours practicing them. In addition, a major part of learning jazz, is about listening, transcribing, and imitating music.

Listening is certainly a necessary resource for any musician of any genre. But in jazz music, especially at the beginning of the studies, it is the only thing to do. Of course, jazz can be taught by instructors, and there are many great jazz teachers in the world. But I also know from my personal experience that the first homework that a jazz teacher gives to his students is to listen. This is the way jazz was born and the way it has evolved through the years. Listening is not only the basic tool for learning to improvise, but also for all the aspects connected to sound, phrasing and style.

The structural differences between a jazz and a classical mouthpiece, analyzed in section 3.1, have a central role in defining the sounds. In addition, if we compare the embouchures, for example, in classical saxophone there is a certain position one needs to maintain in order to get an even, clear, pure and well intonated sound, and that position is generally quite steady. In contrast, when playing jazz saxophone, the musician's embouchure moves all the time in order to adapt the sound to all the different octaves.

A jazz teacher can in fact just give advice about the embouchure, but then it is up to the student's taste how to use it. In other words, the jazz embouchure develops through listening and imitating other players. A student hears certain sounds. He tries to imitate them by moving his lips, jaw, facial muscles, tongue, and little by little these movements will become a part of his or her playing and vocabulary as a musician.

The jazz embouchure is adjustable and jaw movements are used to play subtone and produce accents. For a classical saxophone player this is one of the challenges involved in learning to play jazz saxophone since classical players are taught to keep a steady embouchure position. On the other hand, once this jaw movement is learned, it should not be used when playing classical saxophone music, because it would badly affect the quality of sound.

Phrasing is probably the biggest difference between classical and jazz music in general. Jazz phrasing, as a combination of rhythmical feeling, articulation and accents, is the very ground where jazz musicians build their solos, but it is again something that cannot really be learned from books. Listening and imitating is the only way to master it. According to many musicians, phrasing and rhythm are even more important than note choices, sound and finger technique. It is a fact that if a classical musician improvised in a piece, with a classical phrasing, over a sequence of chord changes, playing all the right notes, it still would not sound like real jazz.

Even though during daily practice many of the same tools (scales, arpeggios, etudes) are used by classical and jazz musicians, it seems to be case that jazz musicians are always harmonically more aware of what is happening. In my experience, classical musicians, especially players of monophonic instruments, easily "ignore" most of the harmonic relations between the chord progressions and the notes.

Another big difference between classical and jazz saxophone, and classical and jazz music in general, is related to improvisation. Anyone can learn to improvise and, as I pointed out in the introduction, in my opinion everybody should be able to express their musical ideas and feelings through music and improvisation. Many classical musicians cannot improvise in the jazz style and for a violinist, for example, this is not a big problem in terms of employability. However, for a classical saxophonist the ability to im-

proviser in the jazz style would definitely give more opportunities for work. For example, the opera *Yhden yön juttu* by Olli Kortekangas includes a part where the saxophone should improvise over a chord progression along with a double bass and piano. In order to learn improvisation, the musician should open his ears and try to understand the connections between harmony and notes.

As for music composed for classical saxophone, whether that be solo pieces, duets for saxophone and piano or ensemble music, many composers in the last 100 years have written compositions with jazz influenced harmonies and rhythms. However, these compositions are mostly meant to be performed in a classical style and unless the composer directs otherwise, then they should be performed with a classical sound and phrasing.

On the other hand, many jazz musicians have studied classical music. The fact that musicians such as Parker or Gillespie admired and studied Bach's works proves that also classical music was an inspiration to them. I think that if a classical player analyzed the harmonies of some passages from some pieces that he has played, he or she would begin to understand the connection between harmony and melody. This could be an important first step in learning to improvise.

To conclude, I agree with Professor Russell Peterson, jazz and classical saxophone player and teacher at Concordia College in Moorhead (Minnesota), with whom I had a conversation about jazz and classical saxophone and saxophonists: learning classical and jazz saxophone at the same time is technically possible, but it will take a lot of energy, motivation and hours of practicing. In order to learn classical and jazz saxophone, the player must be aware of the differences (embouchure, intonation, sound) and try to keep the two styles separate. In other words, he or she should avoid transferring jazz elements into classical playing that could have a negative impact on the quality of playing (bend, embouchure, intonation). A classical saxophonist who wishes to learn jazz music should of course listen to jazz masters and study jazz music and playing technique seriously. However, since music is music, he could get inspiration from elements that he has learned during his classical career such as melodies and their relation to the underlying harmony, rhythmical patterns, instrumental colors and chord voicing.

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