

**IB  
EXTENDED ESSAY**

Subject: Music

**Guitar musicians of the 20<sup>th</sup> & 21<sup>st</sup> century have invented new playing techniques and stylistic developments on their instrument. These techniques were supported by the development of music technology. What stylistic and technical options are available to guitarists today?**

Exam Session: November 2013

Word Count:

Nota C

## **ABSTRACT:**

**Guitar musicians of the 20<sup>th</sup> & 21<sup>st</sup> century have invented new playing techniques and stylistic developments on their instrument. These techniques were supported by the development of music technology. What stylistic and technical options are available to guitarists today?**

Guitarists of today have a big advantage compared on the guitarists from the early 20<sup>th</sup> century. It seems to be a short period of time, but during these years there was a big advance in the guitar, technically and technologically. In the 20<sup>th</sup> century, some guitarists were able to develop their own techniques, which now are able for the ones who are learning how to play guitar. The guitarists investigated in this essay are: Jimi Hendrix; Eddie Van Halen; Allan Holdsworth; Frank Gambale; Joe Pass. They were, from my point of view, the ones who renewed massively the guitar and the way of playing it. It can be heard that nowadays guitarists use these techniques frequently, because they are easily available for them.

Technology has also a great influence on the guitarists of today. The advance of it helps the ones who want either a specific sound or imitate a famous guitarist they like. Also the sound of the guitar was polished in a way that it can be differentiated in the various genders of music.

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# Introduction:

**Research Statement: Guitar musicians of the 20<sup>th</sup> & 21<sup>st</sup> century have invented new playing techniques and stylistic developments on their instrument. These techniques were supported by the development of music technology. What stylistic and technical options are available to guitarists today?**

During these last centuries, guitar developed significantly in many ways. The electric guitar was invented, which marked an important evolution on its sounds and way of playing. Later, with more advances on technology, different guitarists developed new ways of playing that now are in the hands of all guitarists from today. I have chosen this topic because I am a guitarist that uses all these different techniques and I have interest on who developed them or created them and learn in depth how to use them.

The guitarists I will study are Jimi Hendrix, Eddie Van Halen, Allan Holdsworth, Frank Gambale and Joe Pass. I have chosen these because they are, in my opinion, the ones which guitarists from today take ideas and techniques. Nearly all heavy metal players use sweep picking developed by Frank Gambale and tapping by Eddie Van Halen. Many Jazz guitarists improvise including chord melody, developed by Joe Pass. Jimi Hendrix was the father of effects and rock guitar players: he was one of the first in using the wah-wah and making psychedelic freak-outs. Allan Holdsworth marked a significant step between the legato before him and his developed one.

I will pose my investigation as follows: In the first chapter I will look for the guitarists who developed a specific technique or have a great influence in music today. I will include some background information about him and then

indicate which technique he developed. After this, I will describe the technique, including in some cases scores, and citing fragments of a song where the guitarist uses the technique. In the second chapter I will write about the technology and its impact on the sound of a guitar. I will describe the effects, individually, which are frequently used by today's guitarists.

Jimi Hendrix was born the 27 of November of 1942 in Seattle<sup>1</sup>. His songs and the effects he made with the guitar were impressive in those days. What made Jimi very famous and recognized was the unique he had and the expressive techniques he applied, rather than the velocity and complexity of chords.

One of the styles he developed was the advanced technique he employed in creating psychedelic freak-outs. This technique was very influenced by the volume and the feedback<sup>2</sup>, so that is the reason why he usually controlled the volume and tone controls. "Star spangled banner", a song that performed in Woodstock, showed a lot of loud noises, combinations of the right and left hand, including the whammy, which sound disastrous. Those sounds are not played at random, and that is what Hendrix had specialized. Another technique he developed was the ability to control the pedal effects (above all, the wah-wah), which nowadays it is used by nearly all the best guitarists (Steve Vai, John Petrucci, etc). In the song "Voodoo child", the melody is played with an included effect. This gives the song more groove and personality, making it a hit for the public. Hendrix did not use the whole 7 note scale. He used the pentatonic one, so he's riffs and solos were very powerful. The expressive techniques used in this song are for example: vibrato and lots of hammers and pull offs.

Another famous song, "Little Wing", has a lot of techniques, which only Hendrix used, for example: double stopping (playing two notes at the same time) or glissando. The way he tuned his guitar was very uncommon those days but now it is very common for heavy guitar players: 1 semitone down for all strings

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<sup>1</sup> <http://www.buzzle.com/articles/jimi-hendrix-biography-and-life-history.html>

<sup>2</sup> <http://www.soulofrocknroll.com/content/articles/why-hendrix-guitar-master-part-1-innovative-technique>

(and in some songs, 1 tone)<sup>3</sup>. This tune made the guitar sound more heavy, powerful and personal. What Jimi did in most of his songs was to play the melody in his guitar and at the same time sang it, technique that is used in the present in a lot of songs. What this technique offered was a stronger base for the melody to vary the dynamics of the songs.

Nowadays, all these techniques are applied in guitar solos and compositions. Jimi Hendrix had a heavy influence into guitarist from the present. The psychedelic freak outs techniques are very common, and they started developing when Hendrix used them.

But Hendrix was not the only one who influenced present guitarists. Is true that he renovated the way of playing the guitar but another guitar player who made a big difference in the way of playing (especially rock/heavy) was Eddie Van Halen. He was born on January 26, 1955 in Nijmegen, The Netherlands<sup>4</sup>. With his brother Alex, they started with a band named Mammoth, which later, when David Lee Roth (vocals) and Michael Anthony (bassist), it turned into Van Halen. By combining rock with powerful and very technique guitar riffs, this band was a hit in the world of music. Although Van Halen's songs were commercial (for example: "Jump"), what made this band successful and unique was Eddie's impressive "tapping." This technique is nowadays used by most guitarists, for example: Steve Vai, Joe Satriani, Herman Li, Buckethead, and many others, especially in the heavy rock gender. It consists in use the fingers of the right hand to play lines in one or more strings, which enables the guitarist to play with a bigger and faster variation. This technique was not used by many

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<sup>3</sup> <http://sonidodeguitarras.blogspot.com.ar/2008/08/jimi-hendrix.html>

<sup>4</sup> <http://www.biography.com/people/eddie-van-halen-9542559>

guitarists, and rarely in rock. Guitarists like Stanley Jordan (jazz) or Steve Hackett (progressive rock) used the tapping technique, but in different ways. For example: Stanley Jordan did momentary tapping, this means, in the melody and solo's he use this technique. This technique is called "two hand tapping" or "touch style", which is different to the normal tapping. Steve Hackett was older than Van Halen and he used it similar to him, but it is notorious the renovation Eddie did. His way of tapping, which is very used nowadays, consist in tap different notes in different strings with the right hand and momentary plays phrases with the left hand. One song which he shows his marvelous skills is "Eruption", which is a composed solo from about 1:30 minutes, which has a variety of tapping, fast licks and a rapid right hand. The other thing Eddie did was to keep a line note on the left hand and tap a melody with the left one<sup>5</sup>. He also used the tremolo bar to create spectacular sounds like Jimi Hendrix, but they sound better because he used a "Floyd Rose" tremolo bar (more capacity of untuning the strings). Van Halen's riffs were both in the pentatonic scale and in the 7 note scale, usually in the first one. Therefore the song's riffs were groovy and heavy. When Eddie improvised, he used the 7 note scale to have a bigger variety on what to play and also to play faster licks.

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<sup>5</sup> [http://www.youtube.com/watch?v=z\\_lwocmL9dQ](http://www.youtube.com/watch?v=z_lwocmL9dQ) (minute 0:09 to 0:21)



Figure 1- Excerpt from 'Eruption'<sup>6</sup>

I will be analysing the first part of the song “Eruption” by Van Halen (Refer to Figure 1). The lines in the bottom (below the semi quavers) represent the guitar strings (last one is the 6<sup>th</sup> string and upper one the 1<sup>st</sup> string). The numbers in it represent which number of fret has to be played, depending on which string it is. Below the TAB, there are some letters: T (tap), P (pull-off), H (hammer-on). It starts in the 9 fret and then jumps to the 2 fret (all in the same string), continuing in the 5. The first jump is very difficult to do in a rhythm of sixteenth triplets without tapping the higher fret, so that explains the letter T below the 9.

Eddie Van Halen was one of the most important innovators in the history of guitar. Today nearly all guitarists from different genders influenced in Van Halen and are likely to do Eddie’s tapping technique. They use it because they are able to play fast lines and impression the audience. It is true that he did not invented tapping, but he renewed it and made it famous (the band was known worldwide).

<sup>6</sup> [http://guitaralliance.com/private/licks\\_and\\_phrases/eruption/index.htm](http://guitaralliance.com/private/licks_and_phrases/eruption/index.htm)

The *legato* is a technique used since the Baroque period, which now is commonly used in nearly all string instruments, especially guitar. A legato creates a smooth, slurred effect on notes, leaving no audible spaces between them<sup>7</sup>. The guitarist who innovated the way of using this was Allan Holdsworth. The type of legato before his innovation had little variations because there were few ways of using it.

He was born in 1946 in Bradford, Yorkshire<sup>8</sup>. What made him very unique was the type of music he played and how: jazz-rock fusion. He played it by linking jazz licks and scales in a rock sound and type of music. He was pushed into music by his father, who taught him musical theory and jazz appreciation<sup>9</sup>. Then he met the England's best jazz tenor saxophonist, Ray Warleigh, which entered Holdsworth to a higher level of jazz musicians and made him progress. He entered international audiences in the early 1970s, playing with John Hiseman's (drums), Mark Clark (bass) and Paul Williams (vocals and keyboard) creating the band "Tempest", which played a progressive rock music<sup>10</sup>. Later, in the same decade, he joined a group of musicians: Karl Jenkins (saxophone, keyboard); Mike Ratledge (keyboard); John Marshall (drums); Roy Babbington (bass); and named the band "Soft Machine", which was one of he's greatest hits in the world. In 1988, he recorded two albums which deferred from the others:

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<sup>7</sup> [http://piano.about.com/od/basicmusicalterms/g/GL\\_legato.htm](http://piano.about.com/od/basicmusicalterms/g/GL_legato.htm)

<sup>8</sup> <http://www.allmusic.com/artist/allan-holdsworth-mn0000002252>

<sup>9</sup> <http://www.therealallanholdsworth.com/allansbio.htm>

<sup>10</sup> <http://www.therealallanholdsworth.com/allansbio.htm>

<http://www.therealallanholdsworth.com/allansbio.htm>

“Sand” and “Atavachron”, because he played a synthesized guitar: Synthaxe.

Thanks to that, Allan received an award as “best guitar synthesis”.

What this guy had as a guitar player was the incredible legato and slur, with speed in his fingers. He did not focalized in sweep picking, which was easier to do to play his lines instead of legato. He developed a way of tapping that no one did: accent any note in a scale. There is an interview to Holdsworth in a web page: *“I’ve practiced playing scales where you put the accent anywhere, whether on a note you pick or one you don’t. You can say, ‘I’m going to play four notes and accent the second note, but I’m only picking the first note.’ So you make the first a really gentle touch, and then you have to whack the string with your finger on the second. For the third you can be a little slower when it hits the fret, and so on, so that eventually you can put the accent where you want it<sup>11</sup>.”* It is normal that when you play a note with a pick is the one that is accented because you have an easier control on the dynamics, but what Allan did was to accent without the right hand pick, this means, be able to play only with his left hand. He developed the sufficient strength in his left hand fingers to be able to do this. He also could accent any note because he played the note which he picked very gentle (for a lower sound) and when he did legato he “whacked the string with his finger” to produce the accent. Another thing he does is to use four note slur in one string.

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<sup>11</sup><http://www.woodytone.com/2010/01/29/allan-holdsworth-on-not-sweep-picking/>

The image shows a musical score for guitar. The top system features a treble clef staff with a 4/4 time signature and a key signature of one flat. The melody is written in eighth notes. Below the staff are three guitar strings labeled T (Treble), A (Middle), and B (Bass). Fingerings are indicated by numbers 1-4. The second system continues the melody, also with fingerings 1-4. The guitar strings are labeled T, A, and B, with fret numbers indicated below the lines.

Figure 2- Four Finger Legato Technique by Alan Holdsworth<sup>12</sup>

The score above shows how there are four notes in one string (Refer to Figure 2). Normally, slur in guitar is played with three fingers per string, but the problem is that there are not many variations and compare to four notes per string, the lines are very short. This enables the guitar player to play more and longer lines, provoking a glissando expression.

Using Allan Holdsworth techniques, guitarists of today are able to create different lines and have a variation in their speed and accents, making a fast solo full of legato and slur more interesting. But what Holdsworth did not do, which was replaced by his special legato, was sweep picking. This technique is also an expressive technique very similar to glissando. It is used in improvisation to create an impression of ascension because it is mainly played from a low pitch to a high one. It is nowadays very used by guitarist, especially heavy metal guitarists. It is “a guitar technique used for playing fast arpeggios. One note per

<sup>12</sup> <http://www.jazzguitarlessons.net/the-post-holdsworth-jazz-vocabulary.html>

*string is fretted by the left hand, while the right hand sweeps down/up on the strings in one motion*<sup>13</sup>.” It is very difficult because the right hand has to synchronize with the left one.

This technique was developed by Frank Gambale. He was born in 1959 in Canberra<sup>14</sup>. His family was composed of talented musicians, so his entry to music was easy and direct. In his teenage, Frank was orientated to the jazz and vocal based music. At age 17 he started playing the piano, so he learned the base on the passage and thinking of chords while he played. At the early 80’s he went to Los Angeles to have more opportunities in the ambient of music.

The technique Gambale developed is named sweep picking, which is now used a lot in many different music genders. Inside this technique, he also developed the economy picking, which is a technique that enables the player to pick faster. It is achieved by using “two consecutive pick strokes of the same direction when you change strings”<sup>15</sup>. It is used in a scale which has three notes per string to make the economy picking efficient. This technique enables guitarists from today be able to play very fast lines. These lines are generally used to link two ideas, the first one in a low pitch and the second one in a higher because it gives the impression of ascension.

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<sup>13</sup> <http://www.urbandictionary.com/define.php?term=sweep%20picking>

<sup>14</sup> [http://ae.yamaha.com/en/artists/guitars\\_basses/frank\\_gambale/](http://ae.yamaha.com/en/artists/guitars_basses/frank_gambale/)

<sup>15</sup> <http://ezinearticles.com/?Economy-Picking---The-Frank-Gambale-Technique&id=5759096>

Sweep Pick like Frank Gambale  
MortensLessons.com



Figure 3- Sweep Picking Technique by Frank Gambale<sup>16</sup>

In the above image there is a score of Gambale's sweep picking (Refer to Figure 3). It can be seen that there are one or two notes per string, and there are a lot of separated notes. The rhythm of the notes is in semiquavers, which represent a fast speed. So the only way to play this is by using the sweep picking technique which Gambale developed. When this technique is used, a fast glissando expression is heard. Commonly, Frank and today guitarists use sweep picking when playing arpeggios because the sound is clearly defined.

Sweep picking is a technique which everyone who plays the guitar try to learn it because it is a challenge and can define between a good and a mediocre guitarist. It is commonly heard in heavy metal or genders which have in general a fast tempo, but Gambale applies sweep picking in jazz fusion gender, so the technique can be used in a big variation of genders.

All the techniques mentioned before are especially for guitarists who play rock or any similar gender that is usual to play fast or impressive lines, because there are techniques which allow the player to play rapid links or phrases. There are exceptions where they can be used in genders which are smoother, but it is

<sup>16</sup> <http://www.mortenslessons.com/sweep-pick-like-frank-gambale>

rare. There is a technique that was developed by Joe Pass which is mainly for jazz, and barely seen in other genres named “chord melody”.

Joseph Anthony Jacobi Passalacqua (Joe Pass) was born on January 13, 1929. His father obligated him to practice 5 hours a day because he thought his son was able to play. He recorded his first album as a bandleader in 1963 with Colin Bailey (drums), Clare Fischer (piano) and Albert Stinson (bass). During his career, he played in a lot of bands with good jazz musicians, and became the most recorded jazz guitarist (improvising and accompanying other jazz musicians)<sup>17</sup>.

Chord melody or chord soloing was invented and developed by Joe Pass. It consists in play a melody or a solo in a high pitch and with the same instrument play the accompaniment, which can be triads or drops of the chord. This technique is generally used when jazz guitar players improvise alone, without any accompaniment. By using chord soloing, they make the solos heavier but sweeter. Below there is an example of chord soloing.

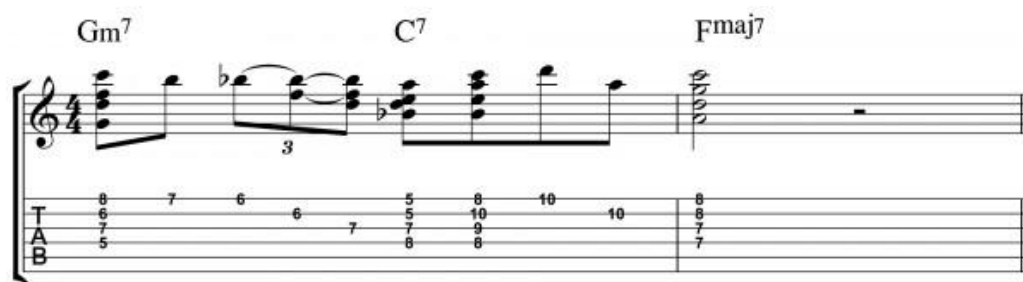


Figure 4- Chord Melody Lick by Joe Pass<sup>18</sup>

This score represents a Joe Pass’s lick (Refer to Figure 4). It can be seen that there are three chords: Gm7, C7 and Fmaj7. Also, it is clear that in some

<sup>17</sup> <http://www.musicianguide.com/biographies/1608000781/Joe-Pass.html>

<sup>18</sup> <http://www.mattwarnockguitar.com/5-joe-pass-chord-licks-every-jazz-guitarist-should-know>

beats there are more than one note, which before Pass it was rare. What Joe Pass did is to play notes of the chord he is. In Gm7 he played (in order of increasing pitch) G (1st), D (5<sup>th</sup>), F (7<sup>th</sup>), and C (4<sup>th</sup>). In C7 he played Bb (7<sup>th</sup>), D (2<sup>nd</sup>), E (3<sup>rd</sup>) and A (6<sup>th</sup>). A quaver later he played Bb, E, A and C. In both three figures Joe Pass included at least two notes which define the chord he was at the moment. These notes are (for every chord): 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup>.

Joe Pass was a very recognized jazz guitarist because he created the technique which nowadays it is used by a lot of jazz guitar players. They are able to play alone without any background. The result of this will be similar to play with an accompaniment guitar but the difference is that the chord melody triads are in a similar pitch to the melody note.

All the guitar techniques described before are very useful for guitarists from today to learn and increase their variation while playing. These guitar players are a good base to inspire on and take information about the way of playing a guitar. But in the other hand, the development of sounds (technology) is a huge tool for nowadays guitarist.

## **Technology**

One of the most important renews on the sound of the guitar was the distortion. The first way of use it was to put the volume very high in an amplifier with tubes with the intention of distorting the tubes. But when rock and roll progressed there was a higher demand of distortion, so they decided to develop it. In Figure 5, it can be seen a developed overdrive distortion pedal.



Figure 5- Over Drive Distortion Pedal



The distortion is nowadays used in nearly all genders of music. It is very common in rock and similar genders. Also, there is a huge variety of distortions: overdrive, distortion, fuzz, etc. These three are the ones which were developed throughout time which lead to a big variety of them. Later, pedals (Refer to Figure 5). were invented to facilitate the change of clean to distortion. Guitarist from today are able to have different types of distortions, from mild to powerful, and also an easy way of change from clean to a rotten sound to provoke an unexpected change.

Another effect which is used nowadays is the delay effect. It is not characteristic of any gender because it acts like an ingredient that it does not seem to be present but still helps to achieve a better sound. It was first obtained (around 1920) by recording two different audio heads, where one was played later than the other one, obtaining a delay effect. Later on the digital delay was invented, that repeated the audio waveform in different volumes (depend on the assignation)<sup>19</sup>. Guitarists from today are all capable of using this device, and they do because it is common to hear this effect in nearly all genders.

The reverb is another effect which is similar to delay because it does not make a big difference like, for example, distortion. The effect it does is to make the sound the same as playing in a big closed space or chamber (echo forms). It was first used by Bill Putman Sr. in 1947<sup>20</sup>. In the present there are pedals or amplifiers which include this effect for guitarist of today.

The effects described before are the ones which nearly all guitarists around the world use either to create a proper and personal sound or to imitate

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<sup>19</sup> <http://www.recordinginstitute.com/da154/ARP/chap3Sig/0308hist.html>

<sup>20</sup> <http://www.scribd.com/doc/57449870/History-Development-of-Reverb>

another guitarist. The advances in technology give the guitarists an enormous variety of sounds and allow many new tools that in the 20<sup>th</sup> century they did not have.

## Conclusion:

Research Statement: **Guitar musicians of the 20<sup>th</sup> & 21<sup>st</sup> century have invented new playing techniques and stylistic developments on their instrument. These techniques were supported by the development of music technology. What stylistic and technical options are available to guitarists today?**

In conclusion, by looking the scores and hearing examples of them, the techniques developed by those guitarists changed significantly the way of playing the guitar in guitarists of today. They are able to imitate and take ideas from the developers to have a greater variety of tools when improvising. The technical options: tapping; sweep picking; legato (any finger accent); chord melody; are now used by nearly every guitarist around the world. In addition, techniques that were specific for one gender of music were adapted so that they can be used in other type of music.

The improvement of technology helped guitarists from today to have a greater variety of the sounds they want, either to imitate a known guitarist, or better, create their own personal sound.

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