

Artistic Research

The French cello bowing style from around 1900

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Cello

Performance Practice

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Part 1: The story of my research

1. Introduction

The Artistic Research has been full of surprises, opportunities and it even created a world full of new ideas for me which I did not think was possible in the beginning of the research.

When I started to do the research, my first thought was to focus on relaxation in performance but since I already been very interested about French cello playing for a few years I decided to change the path because I found my topic less treated and full of potentials. Thereafter I started in the Performance Practice domain where Job ter Haar became my coach and to have a cellist as a coach when you are a cellist yourself has been very inspiring, helpful and motivating for me.

From a few years ago I have always wanted to have a broader insight in the bowing style and a deeper understanding about it, because I knew that it could led to self-improvement in my own playing and also be useful for other cellists. As I have been fascinated of cellists such as Paul Tortelier, André Navarra and Maurice Gendron for their way of playing the French repertoire and their use of the bowing technique, I was curious to find out more about their heritage in French playing and how they applied this in their musical language. The knowledge about this area has never been close to me, which I will explain later in my motivation.

After a few domain meetings my head was full of new ideas for the Artistic Research. The journey took off with the French bowing style from around 1900 on the cello, where I got the opportunity to research in several elements of the bowing style and how I could apply them to the French repertoire and close related repertoire from that period.

Since then, I have felt that my choice of the subject has been right and has kept me interested to progress in this unknown area for me throughout my Artistic Research.

2. Motivation

During my bachelor studies I explored many elements of technical aspects of my cello playing that I wanted to have a deeper understanding of, there was one element that I always wanted to learn more about as I found it very interesting. At the same time I discover that it could be of great use for me in my playing; the bowing technique. I have had East European teacher since the beginning of my cello career therefore I felt that I wanted to explore the French way of playing and also the French repertoire. My previous teachers had no relation with the French school therefore I never played French repertoire or learned what was French and not French.

When I came to Codarts I saw the Artistic Research as a great opportunity to look deeper into the French bowing style. My choice of the subject became a strong motivation for me since I been curious and interested in the French bowing style and the repertoire for a few years already. My thought to teach other cellists about this subject has also inspired me and kept me motivated during my Artistic Research journey.

3. Research Question

How can I learn the distinctive elements* of the French bowing style from around 1900 on the cello, and apply them to French repertoire from that period, according to the appropriate musical aesthetics?

*Elements to investigate include:

Bow speed, The spiccato bow, The staccato bow, The bow hold,
The contact point of the bow and string,
The bow arm, volume dynamics, tone quality/sound, placing of the bow, weight

4. Goals

My main goal with my research was to get a deeper understanding of the **distinctive elements of the French bowing style** from around 1900 and how I could apply it in its musical language from that period. I have been searching for possible meanings or **explanations for these specific technical** aspects in my artistic research.

One of my other goals was to be able to **teach students about the French bowing style** and to give them an insight of how cellists used their bow and why. Therefore I wanted to become **an expert in French bowing style** from around 1900 on the cello.

5. Discoveries and development of the first intervention cycle.

My first intervention was about how to get an insight how the French cellists from around the 1900 century used to **hold their bows** and their **use of stroke mechanics**.

I chose three methods from my literature list by Vaslin¹, Bazelaire² and Alexanian³. These methods have been of great use throughout my research and they were full of new discoveries for me. Especially about the bow hold and the bow arm which I started my research with.

I asked myself and my supervisor, what is typical French for the bow hold and stroke mechanics. Thereafter I decided to do minor researches about the Italian, German, English bow hold and later on I compared them with the French bow hold and bow arm. I found out that there are several differences between them and that my bow hold is mainly French which I had no idea about before I started the Artistic research.

The development in this intervention cycle was mainly that I can point out the differences between them, apply them to my own use and teach others the methods of the bow holds.

I also got a deeper understanding of the differences of German, Italian, English and French bow hold from around 1900.

¹ Vaslin, Olive, *L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet*. Paris, 1884.

² Bazelaire, Paul, *L'enseignement du Violoncelle en France*. Paris 1944, Bazelaire, Paul, (1920) *Quelques Notes; sur different points importants de la Technique Generale du Violoncelle*. Editions Maurice Senart et Cie. Paris.

³ Alexanian, Diran (2003), *Complete Cello Technique: The Classic Treatise on Cello Theory and Practice*. Dover Books on Music, England

When I studied these methods I found out that playing with a high elbow is not typical French style for the bow arm. After organized feedback session with experts on my **Zero point recording** I discovered that the position of my elbow is high. This reflection was very important information for my research, as it is not French style and this gave me a clear idea of how useful it is to do a reflection, not only by myself but also share it with others (Job ter Haar, Jeroen den Herder, Ivan Nogueira) to get a broader view on small details.

My **2nd recording** was motivating and appealing to me because of the differences from my zero point recording. Four of the big discoveries I found with the bow hold/bow arm were these when I applied them after analysing the three cello methods.

- Early music, easy to use the French bowing style from around 1900
- Romantic music, difficult to use.
- Problems to get flexibility in my wrist.
- I could control the bow better in some aspects.

6. Discoveries and development of the second intervention cycle

As I found a lot of useful material in my first intervention cycle I was looking forward to start with my second intervention cycle. To retain the motivation and carry on working on the distinctive elements of the French bowing style from around 1900 was easy, because I had a clearer idea than in my first intervention and it would make more sense for me to put the elements together from my first intervention with the elements in my 2nd intervention cycle.

For my 2nd intervention cycle I decided to investigate in the French bow strokes which later led to these elements: the contact point of the bow and string, the bow speed, the bow arm, placing of the bow, tone quality/sound and the weight of the bow while playing. I was searching for a deeper understanding and explanation of these elements. Thereafter my goal was to apply the new knowledge in my own playing, being focused on the French repertoire from around 1900. I also continued investigating why the French cellists from around 1900 were using their bows in a certain way.

In each method I found out information that gave me an idea of how I could apply it in my own playing. I already knew some of the material from before but I found many new useful things. It was also interesting and important to know where the sources come from.

One of the most interesting discoveries from Alexanian's method⁴ was that the equal intensity of the bow between the heel and the point of the bow (or vice versa) is due to the pressure of the thumb and the 1st and the 4th fingers of the right hand. This has been of very good use in my practice as I felt that I could control the pressure in my bow better than I did before. I also found exercises of how to handle the bow, which has made a development especially in my legato bowings.

The case study that I did for my 2nd intervention cycle was about M. Marechal's J.C. Bach Concerto 1st movement in c minor. I focused on his articulation, use of bow, bow speed, sound quality, disadvantages and advantages in Marechal's playing. As it was not easy to hear all these elements in his version, I decided to do an imitation to be more aware of what he did. Before doing the imitation, I decided to do my own version as it would be interesting to hear our differences in playing. I did a reflection of the two versions with the help of my cello teacher. This gave me an insight how a cellist from that time used his bow and the decisions Marechal made. It was fun and exciting to see the differences between us.

In my **3rd recording** there were not too much differences in the bow hold from my 2nd recording. I felt that I could control the bow better in some aspects, especially in the lower part of the bow. I discovered that I had problems to find a regular connection between the bow and the string. This is something I am still working on to develop in my playing.

⁴ Alexanian, Diran (2003), Complete Cello Technique: The Classic Treatise on Cello Theory and Practice. Dover Books on Music, England

7. Discoveries and development of the third intervention cycle

My third and last intervention cycle was about the **spiccato and staccato bow**, these were my last elements to investigate from my research question.

My zero point recording in this intervention cycle was made before I did my data collection. Therefore, I realized that my research of the three methods I used gave me **results**, as **my final recording** showed a more controlled spiccato and staccato bow. I believe that the exercises and information I found in the methods helped me to achieve the feeling of a more confident and controlled spiccato. After my third intervention, I feel more aware of how to practice the both elements and have a better understanding of how I can explain the elements to others.

One thing I have noticed in my **spiccato** is that I don't jump as high as I used to do before the intervention cycle. After following instruction, I can now make my spiccato even faster with smaller jumps/movements. This might seem like a small observation but it really made a difference in my spiccato.

In the **staccato** bow I feel more aware before I play the second note, because I am using the rest to find the pressure of the bow before I start to play. This was instructions from **Vaslin's method**, which I found especially useful for my own improvement of staccato bow.

In the third intervention cycle, my aim was to have interviews about the spiccato and staccato bow with Dimos Goudaroulis and Lidewij Scheifes, as they are expert in the French bowing style. This did not happen as I didn't get a response from neither of them. It was unfortunate for my research as it could have been very useful and interesting and also, to use my network outside Codarts. However, I am still satisfied about the third intervention cycle, as I feel that I have developed the both elements which was my main goal for this cycle.

8. Results in my performance

My biggest result is that I have developed a great **awareness of how I use my bow** (hand and arm) thanks to the Artistic Research.

I found plenty of examples in the methods I have experimented with during my research and for me it has been very interesting to see what does work and what doesn't work in a performance. Therefore, I feel that my decisions of **choices in preparation to a performance** have become easier.

To work out the precise details of the different bow holds (given in the methods) has been easier for me to practice in a gentle and relaxed way. Therefore, I **found difficulties to control the different bow holds in an actual performance** even if I am aware what is happening during the performance.

In Vaslin's method I found out how important it is to breathe out every time I am placing the bow, this has helped me to get a good sound quality and a relaxed feeling in my performances. For a better sound and tone quality, I always try to allow the natural weight of the arm and hand on the bow. I find it more difficult in pieces that have a quick tempo mark and in performances where you feel that the situation is tensed, but mostly **the natural weight supports me** in these kind of performances.

Especially in piano dynamics, I have received a good artistic result with the suggestions from the methods in my research. For example when I let the wrist follow the bow, **I obtain a very good smooth sound**. In order to get a broader view, I asked some people of the audience to listen out for the piano dynamics before I started the performance and this result has also been recorded.

Phrasing has also been a good result as I am more aware of how I divide the notes equally in the bow. This gives me **a good quality of the sound and a smooth line of the notes in a phrase**.

Since I started my Artistic Research I feel that I have become a **stronger and more aware performer during a performance**. This result is something that I will continue working on and experiment with in future performances.

Part 2: Presentation and description of the result

1. What is the result of my Artistic Research? / How did I document my artistic result?

My final result is a personal and informed interpretation of the 3rd movement of Chopin's cello sonata Op. 65 and an excerpt of Saint-Saens' *Allergro Appassionato* Op.43. With this movements, I can show and apply all the discoveries I have done during my artistic research. In addition, I choose the *Largo* because it was dedicated to the French cellist Auguste Franchomme, who made the fingering and bowing of the violoncello part. In *Allegro Appassionato* I can show the elements, *Spiccato and Staccato* which I is not possible to show in the *Largo*. I have done an indication list in my own language in these two scores, which I will explain below. One can also find the two scores with annotations related to the elements I researched in below.

Indication list of the elements I have researched in:

- Bow speed = B.S.
 - The bow hold = B.H.
 - Bow arm = B.A.
 - Weight = W
 - Placing of the bow = P.C
 - Sound/ tone quality = S.T.Q.
 - Spiccato = Sp
 - Staccato = St
 - The contact point of the bow and string = B+S
-

Description list of how I use these elements:

- **Bow speed:** equal intensity of the bow speed between the heel and the point of the bow (or vice versa) is due to the pressure of the thumb and the 1st and the 4th fingers of the right hand.
By using a medium bow speed, I can achieve natural flow in the bowings.
- **Bow hold:** The wrist is round and leaning inwards.
The 1st finger leans into the bow with slightly pressure.
The fingers are quite close together and 3rd and 4th finger straight.
This bow hold helps me to play lighter.
To get a pianissimo sound, the thumb in the bow hold should remain outstretched, even at the heel.

Vaslin's method of the bow hold: ⁵

- Thumb edge of the frog, right side of the bow
- Opposite the third finger
- The first part of the index finger is bent into the wood of the bow. The balance point of the index finger is between the 1st and 2nd joint. The pressure of this finger gives the bow correct angle.
- 2nd finger lean to the hair
- 3rd finger follows second naturally
- 4th finger stands on the bow to keep the wrist round
- All fingers quite close to each other
- Flat bow hair not to tightened

- **Bow arm:** When slurred notes appear together with changes of strings, **the wrist stays more or less the same and it should go together with the forearm.**

Let the wrist follow the bow in piano dynamics to obtain a smooth sound.

The arm is a connecting wire between the body and the hand, this gives me a feeling of "freedom" in my arm, which gives me a flexibility to achieve longer phrases.

It is important to know that the lower arm works as an extension of the bow, the bow makes the strings receive the good impulse of the bow.

- **Weight:** Natural weight of the arm/hand on the bow to create good sound/tone quality.
- **Placing of the bow:** It is important to breathe out while placing the bow, this gives me a relaxed feeling before placing the bow.
- **Tone/ Sound quality:** To get a good quality and a smooth line of the notes in a phrase, I divide the notes equally in the bow. Fingerboard, slight stroke of only a few hairs to obtain a good sonority of a soft sound.
- **Spiccato:** use two-thirds of the bow. Followed by a fast, short, flexibly and rhythmic rubbed movement. The forearm remain relatively still. The bow hand have to hold the bow quite loose in order to make the bow swinging vertically. The spiccato will be bright, vivid and light by using the small rubbed movements and as a result it will start jump of itself. Maintain high forearm. Firm pressure of the thumb and 1st, 2nd, 3rd and 4th finger should be applied to the frog with lighter pressure.
The horizontal movement of the bow should not exceed over 1, 27cm in spiccato
It is important to let go of the wrist in order to receive an automatically fall of the bow.
- **Staccato:** Firm pressure of the bow, by the thumb and the 1st and 4th fingers. Light touch with the 2nd and 3rd on the frog.
For weak or medium intensity, the upper third of the bow should be used.
General maximum intensity is mf in staccato.
The right arm always accompanies the bow in it changes of place.
Staccato is easier to play with an up-bow-upbows, this is because of the natural law. Pressure, attack and relax is a good way to start every staccato note. In the down-bows, it is important to pull the bow and in the up-bows, push the bow.

⁵ Vaslin, Olive, L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet. Paris, 1884.

- **The contact point of the bow and string:** One of the most important thing is to have the right direction of the bow on each string (follow the bridge), this I can control at the contact point of the bow. Short bows, in the lower part of the bow. While string crossing/changes always keep the wrist up and let the elbow follow the changes.

III. Largo – Chopin Cello Sonata op.65

Please see the Final result in the attached DVD.

Elements used in Chopin's *Largo*:

- B.H – Bow hold
- B.A – Bow arm
- B.S – Bow speed
- W - Weight
- S.T.Q – Sound /Tone quality

B.H.

Throughout the *Largo*, I applied the bow hold from Vaslin's method. The thumb's tip touches the edge of the frog inside the bow and opposite I hold the third finger, this is very important in order to keep a good flexibility. The first part of the index finger is bent into the wood of the bow. The balance point of the index finger is between the 1st and 2nd joint. The pressure of this finger gives the bow correct angle. The tip of the middle finger should lean on the hair of the bow. The ring finger follows naturally the second finger. The 4th finger stands on the bow; this position helps my wrist to be round. All fingers must be quite close to each other without any pressure; this helps the sound to be in balance when I do strokes. The hair of the bow should not be too tightened, for the reason that the sound cannot be sensitive enough. To get a better sound quality while doing bow strokes it is necessary to use all the hair of the bow, flat hair.

B.A.

During the whole movement, I applied the bow arm suggested by Vaslin. When the bow is next to the heel, the wrist should be quite high and round in position, the wrist gets less round when it reaches the tip of the bow. At the tip of the bow, the bow arm is straight.

It is important not to turn the wrist in down bow. In up bows is necessary to feel the wrist, in order to do that it is always essential to take time. To take time between down and up bows, I get a feeling of how the bow strokes with the bow arm works. The thumb is bent and tight and while pulling the bow, the thumb gets flexible.

I see arm is a connecting wire between the body and the hand, this gives me a feeling of "freedom" in my arm, which gives me flexibility to achieve longer phrases, especially in bar 12 – 15 and bar 18 – 23.

W.

In bar 5, 10, 16, 18 I give importance especially to the weight. In these bars, I let the bow arm stay straight during the strokes, because then it is possible for me to feel the weight of the arm going down to the bow, especially when the bow reaches the tip of the bow

B.S

Flexibility in movements of the bow speed should come from the arm, the underarm, the wrist and the fingers-which will all lead down to the bow itself. Equal intensity of the bow speed between the heel and the point of the bow (or vice versa) is due to the pressure of the thumb and the 1st and the 4th fingers of the right hand. I take extra care of this element in bar, 1, 3, 5, 9, 16-17, 21 to receive a good bow speed as possible.

S.T.Q

Especially in bar 7, 12, 24 - 27, I divide the notes equally in the bow, in order to get a good quality and a smooth line of the notes in a phrase. I am playing quite close to the fingerboard with slight stroke of only a few hairs to obtain a good sonority of a soft sound.

The image shows a handwritten musical score on five staves, with various annotations in yellow circles and text. The score is in G major (one sharp) and 3/4 time. The tempo is marked 'Largo. cantabile' and 'dim. p'. The score includes dynamic markings such as 'dim. p', 'ff', 'p', 'pp', 'cresc.', and 'dim. p'. The annotations include 'B.H.' (Bow Hand), 'B.A.' (Bow Arm), 'B.S.' (Bow Speed), 'W.' (Wrist), 'S.T.Q.' (Smooth, Timely, Quiet), and 'B.A.' (Bow Arm). The score is divided into measures, with bar numbers 6, 12, and 18 indicated. The final measure is marked 'c. st. s.' (coda). The annotations are placed above or below the notes, often with arrows pointing to specific notes or groups of notes.

Handwritten musical score on four staves. The notation includes various musical symbols such as notes, rests, and dynamic markings. The score is annotated with several handwritten notes and markings:

- Staff 1:** *più lento.* (written above the first measure). *cresc. e string.* (written above the third measure). A circled *Sp* (written above the fourth measure).
- Staff 2:** *a tempo.* (written above the first measure). *f dimm.* (written below the first measure). *> p* (written below the third measure). A circled *B+S* (written above the fifth measure).
- Staff 3:** *sempre p* (written below the first measure).

The score is written in a key signature of one sharp (F#) and a time signature of 3/4. The notation includes various musical symbols such as notes, rests, and dynamic markings. The score is annotated with several handwritten notes and markings.

Part 3: My reflection on the result and process

1. The artistic result

Before I started my research, I didn't have expectation of what the artistic result could give me as a musician, as further I came to the end of my research I noticed that my **result is how I wanted it to be or even better than expected.**

The steps with the intervention cycles have been helpful for me to get an opportunity to see coming results. **The research will help me to know the clear choices I do when I perform,** not about all the aspects of the cello, but regarding my own bowing style. I am very satisfied with these results as I can use them in my forthcoming professional life.

The results did not come automatically into my playing, it took me longer than I expected. Even if I knew the results and how they worked, I felt that it took time to make a good demonstration of it, as a proof of the result. I would describe that my results are continuously in process as they can be more accurate and clear while I am performing. This doesn't need a further research, it has to do with how I practice the results towards a performance.

In my opinion, **the outcome of my result is significant for others, especially for cellists.** I eliminated ambiguity to make the outcome more concrete in some aspects. I would not fully agree that my outcome is significant in a broader theoretical context, as there are different ways how to use the methods for my result, although my result specify more or less exactly when the element should and should not be applied. As I have the acceptance and the knowledge of the result which it depends on, besides that it can be interesting and useful for cellists that are looking for similar questions as I was.

2. The research process

In order to get the **process of my research in a more efficient way,** I decided to build up the research into different steps: Firstly, I saw the intervention cycles as major steps in the research process. Secondly, I divided the smaller steps inside each intervention cycle. From time to time, I divided one intervention cycle into three parts. This worked well for me as I felt that I had a good structure and could follow the steps smoothly. What was difficult in my research was that there were a lot of similarities in the information between the different sources, which made it hard to keep in mind which one came from where.

My research question has been a very good base for me in the Artistic Research. It has been changing a bit throughout the process, which I think is normal as it is in a development during the research. Since I started my research, I have found my question interesting because there is no major research about my question, as far as I know. I got advices both from my coach and peers how I could formulate the question in different ways. The question has kept me curious and motivated for the continuation in the process of the research, therefore I consider that I asked myself the right question.

The research I had in mind for the first artistic proposal was perhaps too big as I had a few more ideas which would need a research themselves. **After the first presentation of my research, I felt that it was more in-depth,** with clear thoughts and details. The time also gave me space in order to process the research and to head in the right direction.

Detailed information and knowledge from many different sources are two of the biggest things that I came across during my research. Unquestionable, these two things will be of great use for the rest of my artistic life. It has given me a clear insight about my topic and has made me see more options for different uses on the cello. Definitely, after my research, I feel that I have more possibilities that I could choose for musical performances in my coming artistic life. As I didn't know much about my research topic when I started, I really feel now, after these two years, that I have achieved a new knowledge in a way that is helpful for me as a musician and also for other cellists.

3. Conclusion

In conclusion, I would say that the artistic result was, of course, an outcome of the research process, but both of them have given me many different and positive benefits for my forthcoming future.

Concluding this section, I also would like to say that I have finished the **research process**, but in the same way I feel that I just started with the **process of my artistic life as a musician**.

Part 4: The Intervention cycles

4. The 1st Intervention cycle

I divided my 1st intervention cycle into 6 steps:

- Zero point recording and feedback
- Starting point; minor researches
- How I will do the research in my first intervention cycle
- Apply to my praxis
- My 2nd recording
- The results

I will explain the research process in each section with a description and a documentation.

1. **Zero point recording and feedback**

Repertoire I recorded for my zero point recording:

Faure: *Après un Reve*

Chopin: Sonata Op. 65, Movement: III – *Largo*

Please see the zero point recordings in the first intervention cycle folder, in the attached DVD.

I chose the Faure as it is a French composer and was the first French piece that came to my mind. Chopin's *Largo* was an interesting choice because it was dedicated to the French cellist Auguste Franchomme, who made the fingering and bowing of the violoncello part.

During the recording I asked the camera man to focus on my right hand and arm, as the bow hold was the first element in my research that I wanted to investigate. I played and held the bow as I did at that moment. The recording was not made with a musical interpretation.

I got organized feedback of my zero point recording from experts and peers from my network list: Job ter Haar, Herre-Jan Stegenga and Ivan Nogueira Martinez.

The main goal with the feedback was to assess what were the differences (if any) between my bow hold and stroke mechanics, and the French one from around 1900.

Three main points of the feedback I received:

- My hand and fingers moved during playing
- My elbow was high, this stands out not to be French style
- My bow hold was mainly French because of the leaning of the hand to the left.

I agreed with the reflections and the feedback I received, even though I was not aware that my fingers moved quite much during playing. I knew that my elbow was high but I did not know that stands out not to be French style. I was guessing that my bow hold had a bit French as I have received comments about it before I started my research.

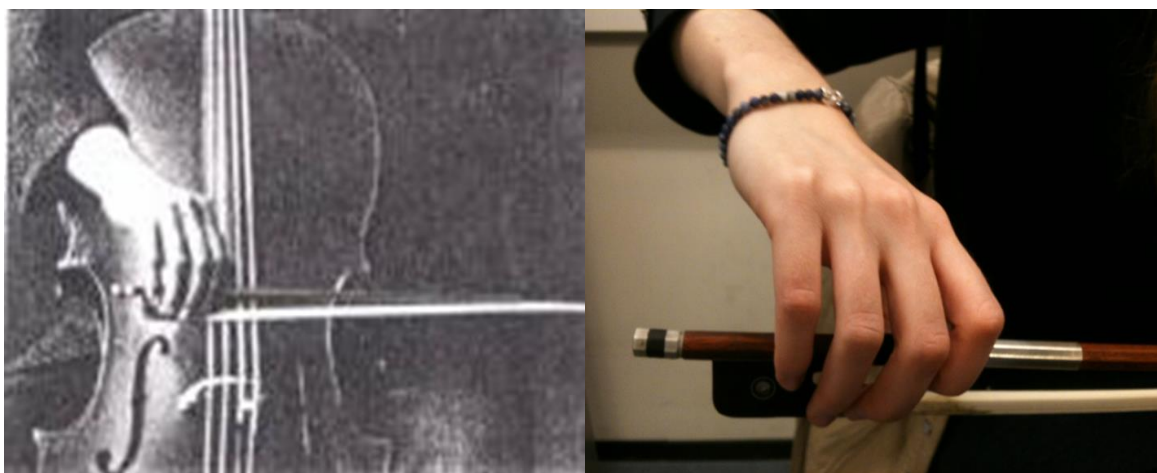
2. Starting point; minor researches

My starting point was to do minor researches about the German, Italian and the English bow hold and look for possible explanations for these differences. My main goal with the minor researches was to find out what is typical French for the bow hold and stroke mechanics. I did these researches with pictures from the countries mention above and I compared the differences I found. I looked at many different cellists bow holds from more or less the same time period. I found these pictures from Google Images and The National Achieves.

Below I will explain the most interesting outcome of the minor researches.

With **the German bow hold** I found out that:

- Fingers are in general round
- There are natural space between the fingers
- The is wrist low



In **the Italian bow hold** I found out the following:

- The wrist is turned inwards
- Fingers sink down in the bow
- Heavy bow hold
- A deep grip of the bow



In the **English bow hold** I discovered that:

- The wrist is straight
- Fingers are close together
- Index finger leans into the bow



In the **French bow hold** I found out that:

- The wrist is round and leaning inwards
- The 1st finger leans into the bow with slightly pressure
- The fingers are quite close together and 3rd and 4th finger straight



3. How I have done my research in my first intervention cycle

Before I started my first intervention cycle, I did an interview with Jeroen den Herder to get an overview of some facts of the French cello playing and the French school in general. Please find a summary of the interview below this chapter.

I divided my 1st intervention cycle into 6 steps. I followed the steps more or less in the order I planned them. I have mainly focused on the three methods I chosen from my literature list by Vaslin, Bazelaire and Alexanian. In these methods I have studied especially the bow hold and the bow arm.

Vaslin's method: ⁶

⁶ Vaslin, Olive, *L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet*. Paris, 1884.

Please see the bow hold of Vaslin's method in the first intervention cycle folder, in the attached DVD.

- Thumb edge of the frog, right side of the bow
- Opposite the third finger
- The first part of the index finger is bent into the wood of the bow. The balance point of the index finger is between the 1st and 2nd joint. The pressure of this finger gives the bow correct angle.
- 2nd finger lean to the hair
- 3rd finger follows second naturally
- 4th finger stands on the bow to keep the wrist round
- All fingers quite close to each other
- Flat bow hair not to tightened

Bazelaire's method:⁷

Please see the bow hold of Bazelaire's method in the first intervention cycle folder, in the attached DVD.

- One important role for a good bow technique is to be very flexible in the wrist, several bow strokes near the heel at the balance point is a good exercise to get good flexibility.
- The bow itself should be independence of the fingers. The bow should be able to react with power from the arm and not the fingers unless you don't want to.
- To get extra articulation in the bow it is necessary for the fingers to be as relaxed as possible, and then the flexibility will come.
- To play forte it is necessary to use small amount of the bow.
- The tip of the bow is weaker than the heel, therefore it is good to practise long bow strokes and at the same time keep the pressure/weight which comes from the arm into the bow at the tip as well.
- At the heel of the bow one can find a large amount of different sound sonorities, this is important to explore, the differences of weight in your hand will help you to discover this.
- Of course there are different sound sonorities at the tip, to find these differences of sound it will ease if you use your underarm during strokes at the tip, this is a powerful technique.
- Wrist natural fall, quite straight (at upper half of the bow, slightly turned but not at the heel.
- Fingers round
- Little finger loose
- Ring finger touches the metal (straighter than 1st and 2nd finger)
- 2nd lean on the hair of the bow.
- 1st finger is curled with the first joint around the stick.

⁷ Bazelaire, Paul, L'enseignement du Violoncelle en France. Paris 1944.

Bazelaire, Paul, (1920) Quelques Notes; sur different points importants de la Technique Generale du Violoncelle. Editions Maurice Senart et Cie. Paris.

Alexanian's method:⁸

Please see the bow hold of Alexanian's method in the first intervention cycle folder, in the attached DVD.

- The Thumb is place on the edge of the bow with the right side and the thumb is bent inwards at the upper part of the bow and bent out at the lower part of the bow.
- Thumb opposite the second finger and third finger, more the second.
- 1st finger is bent around the stick in the first joint
- 2nd finger can lean to the hair or be curled around the stick
- 3rd touches the metal ring or even more the hair
- 4th finger to the left of the frog eye, loose and straight
- The hand is self is quite round, especially in up bows and on the A string
C string is more flat

Pictures of the bow hold and the bow arm have also been researched. Another method I used for my research is video recording; I recorded the three different techniques and a suggested bow hold of Mr Stegenga together with Job ter Haar. Job has also tried these methods and we have together made reflections about it which can be seen in the videos. I had a lesson with Herre-Jan Stegenga about the French bow hold from 1900.

Meeting with Herre-Jan Stegenga 28/4-2014

Herre-Jan did his studies in Paris and teaches in a French way, especially bowing technique.

Herre-Jan is very inspired of Andre Navarra's⁹ (1911-1988) bowing style and stroke mechanics. Even though Navarra didn't live during the 1900, Herre-Jan says that the French bow hold and the stroke mechanics Navarra explains is the same as it was during 1900.

French bow hold: In order to hold the bow the hand has to be totally relaxed, then you can find the natural space between the fingers. The index finger is placed on the bow above the second joint and the little finger tip is place on the "eye" of the frog. The wrist of the bow hand indicates in the direction of the tip. The second finger touches the hair of the bow but also the metal ring. The ring finger joins in and bends naturally. Inside the bow where one can find the edge of the frog, you should place the right side of the fingertip of the thumb.

French bow stroke: Place the bow on the strings and then stretch the arm out, the elbow will lift itself automatically. When you stretch the arm out the fingers should be bending, all fingers including the thumb. The bending of the fingers which comes from the top and goes down happens while you are at the tip of the bow, then you can be sure that the weight comes from the shoulder to the bow. Try always to keep the weight of the shoulder, and then you can be sure that you are doing right. In down bows it is important not to start with a high elbow for the sound quality purpose. To get a *Forte* sound is better to use smaller bow strokes.

Mikaela's bow hold and bow stokes: Herre-Jan's opinion about my bow hold is that is to a degree French. What stands out that it is not French during my bow strokes is that my elbow is too high.

- Please see the suggested bow hold of Mr Stegenga in the first intervention cycle folder, in the attached DVD.

⁸ Alexanian, Diran (2003), Complete Cello Technique: The Classic Treatise on Cello Theory and Practice. Dover Books on Music, England

⁹ Campbell, Margaret: The great cellists. London: Victor Gollanz Ltd. 1988. P. 140-2

Summary of my interview with Jeroen den Herder

M: Which composers do you consider have had an influence in the French cello school and why?

J: Duport; because he was the founder of the French cello school. Franchomme. Debussy; because of his use of extended techniques.

M: Which French pieces would you recommend me to study to experience French style?

I told Jeroen that I have chosen Saint-Saens suite, Ravel violin and cello sonata and Chopin cello sonata for my research's repertoire and he thinks that this is a very good choice of repertoire because these pieces are different but still one can experience a French style in all of them.

M: What is French style for you in cello playing? J: Light and articulated playing.

***Bowing technique?** J: The French way of holding the bow makes the bowing technique become French.

***Left hand, like vibrato?** J: Very clear articulated left hand and the vibrato that comes out of it.

***Posture?** J: Nothing is especially French in posture of holding the cello.

M: Which cellists have inspired you with their French style of playing and why?

J: Fournier, Casals¹⁰ and Tortiller¹¹ because they all have a very clear articulation in their left hand and their bow hold is a typical French bow hold. One can feel that they speak with their sound because of that.

Gendron; because he has a nervous vibrato sound and his sostenuto bowings.

M: Why do you think we still are using the French cello school in teaching?

J: Because of tradition, the French people like to keep their traditions but I think the teaching of the French school will die out soon.

M: Are there any books that you recommend about the French cello school to my research project?

J: Diran Alexanian's theoretical and practical treatise of the Violoncello.

M: What is the most important character that one can recognize in French cello playing?

J: Light and articulated playing and the French bow hold.

¹⁰ Ginsburg, Lev: History of the Violoncello: Western Violoncello Art of the 19th and 20th Centuries.

¹¹ Tortelier, Paul: How I play How I Teach. Fourth Edition 1988, London.

4. How did I apply my knowledge to my praxis

I followed the instructions I read about in the three methods and tried to apply this with great care. I studied pictures I collected for my research and applied the different bow holds with assistance from one of my peers. I applied (together with Job ter Haar) the bow holds from the 3 methods while recording was made. This was an experimental phase for us both. I had a lesson with Herre-Jan Stegenga about the French bow hold from 1900 where he helped me to apply the French bow hold knowledge he had and gave me instructions in order to incorporate it in my technique.

5. My 2nd recording

Please see the 2nd recording in the first intervention cycle folder, in the attached DVD.

My first plan was to do a recording of Ravel's violin and cello sonata with one of the bow holds of the methods. I chose to try out the bow hold from Vaslin's method¹² because it stands out most of the three methods. The use of this bow hold was difficult for me, to play Ravel with Vaslin's bow hold I would have need more time to prepare so instead of Ravel, I chose to play Chopin's Largo which I did in my zero point recording. This was useful for me because I could do a comparison between my own bow hold and Vaslin's bow hold.

6. Results

The results were mainly that I know about the Vaslin, Bazelaire and Alexanian methods of how to hold the bow and the bow arm. I can now tell the differences between them, apply them to my own use and teach others the methods of the bow holds. I have a deeper understanding of the differences of German, Italian, English and French bow hold from around 1900.

¹² Vaslin, Olive, *L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet*. Paris, 1884.

2. The 2nd Intervention cycle

I divided my 2nd intervention cycle into 6 steps:

- Study of the three methods of Alexanian¹³, Vaslin¹⁴ and Bazelaire¹⁵, searching for a deeper understanding and explanation of **the bow speed, the bow arm, placing of the bow, sound/tone quality, weight, the contact point of the bow and string**
- Case study - Maurice Maréchal - Bach
- Case study - P. Bazelaire - Listening observation
- How did I apply my knowledge to my praxis, reflection
- My 3rd recording, reflection
- Results. Reflection on outcome

I will explain the research process in each section with a description and a documentation.

1. **Study of the three methods of Vaslin, Alexanian and Bazelaire, searching for a deeper understanding and explanation of the bow speed, the bow arm, placing of the bow, sound/tone quality, weight, the contact point of the bow and the string.**

In **Oliver Vaslin's method**; *L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet*, I found out a lot of different information that was interesting and useful for my research. I will describe and give details of five of them, which I found particularly helpful and advantageous for the research.

- **Natural weight of the arm/hand on the bow to create good sound/tone quality**
When I followed this instruction, I heard immediately good results of the tone quality. On the other hand, too much of the natural weight in the arm/hand could give a scratchy sound when placing the bow, for example in the beginning of phrases.
I found it difficult to apply this instruction when I was in a stressed situation.
- **The arm is a connecting wire between the body and the hand.**
This statement is a really useful thought in order to make a good image of how flexible the arm can be in relation with the body and the hand. This thought gave me a feeling of "freedom" in my arm, which gave me a flexibility to achieve longer phrases.
I recommended this idea to some of my fellow students as I think it could give them the same feeling as it gave me.

¹³ Alexanian, Diran (2003), *Complete Cello Technique: The Classic Treatise on Cello Theory and Practice*. Dover Books on Music, England

¹⁴ Vaslin, Olive, *L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet*. Paris, 1884.

¹⁵ Bazelaire, Paul, *L'enseignement du Violoncelle en France*. Paris 1944.

- **One of the most important things is to have the right direction of the bow on each string (follow the bridge)**

This was not new information for me as it is a common phrase to hear when you start playing the cello. Even though, I was happy to find this instruction in Vaslin's method because it means that he had the same approach of teaching as many cellists have nowadays.

I personally agree with the information and think it has high value for getting a good start of a correct direction of the bow.

- **To get a good quality and a smooth line of the notes in a phrase, divide the notes equally in the bow.**

After I applied this method into my playing, I received a good quality and a smooth line of the notes in a phrase. Perhaps I was doing this without thinking so much how important it was to divide the notes equally in the bow.

As I am more aware of this fact now, I receive better results in a shorter amount of time.

- **Important to breathe while placing the bow.**

This information didn't specify if it was to breathe out or in while placing the bow. I tried the differences myself, and asked my teacher which breathing could be the right method. I am reasonably convinced that Vaslin meant to breathe out while placing the bow, as it worked really well because it gave me a relaxed feeling before placing the bow.

D. Alexanian's method

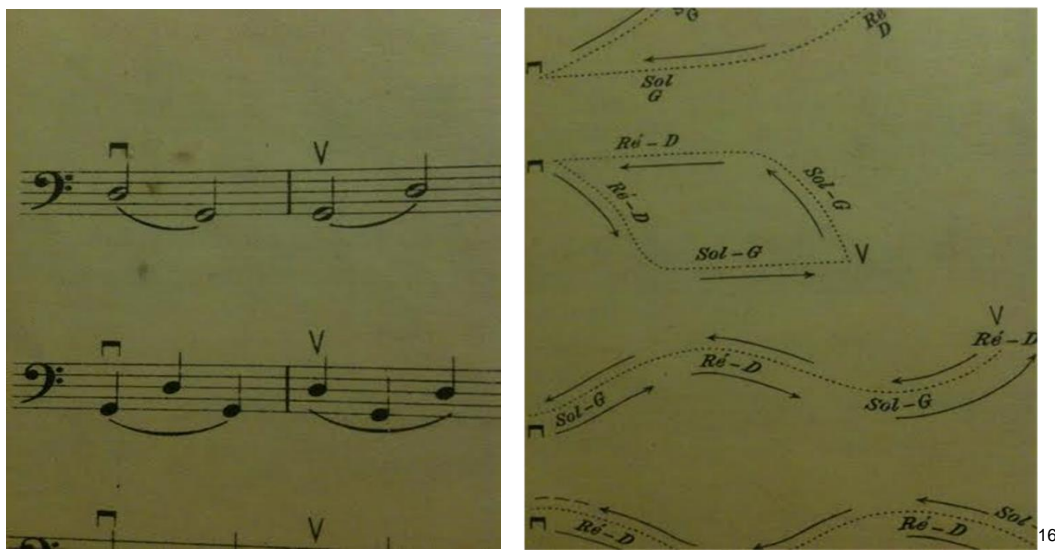
One of the most interesting facts I found in Alexanian's method was that the **equal intensity of the bow speed between the heel and the point of the bow (or vice versa) is due to the pressure of the thumb and the 1st and the 4th fingers of the right hand.** This information gave me a clear idea of how to adjust the pressure of the thumb and the 1st and 4th fingers of the right hand in order to receive an equal intensity of the bow.

As Alexanian wrote "***The proportion of pressure that determines each intensity is, naturally, left to the physical impulse of the player***" made me think of how powerful we, as cellists could be in our decisions of the physical impulses. The statement really makes sense to me and is a great explanation of the fact.

In Diran Alexanian's theoretical and practical treatise of the Violoncello I found exercises of how to use the **movements of the bow, especially with legato bow with great use of hair.**

In the pictures below, one can see one of the exercises that helped me to apply the instructions to my playing easily.

The wrist stays more or less the same and it should go together with the forearm in this exercise.



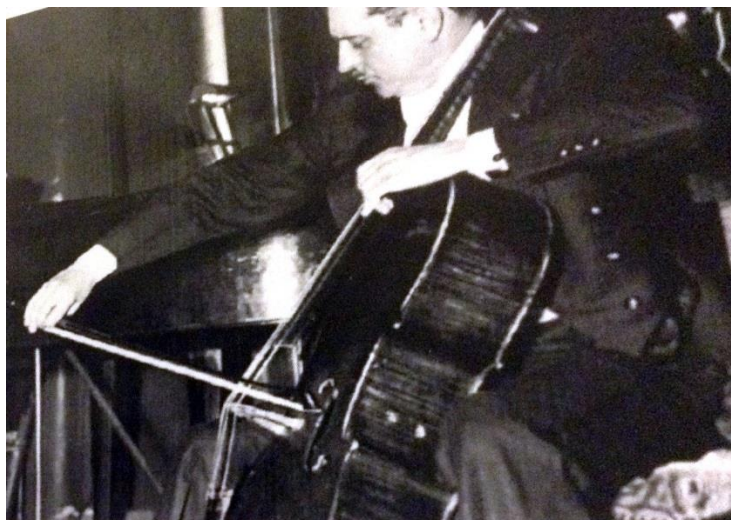
In **Paul Bazelaire's method**; *L'enseignement du Violoncelle en France*, I found out the following information that I found useful for my research:

- **Fingerboard, slight stroke of only a few hairs to obtain a good sonority of a soft sound.**
- **In order to get a pianissimo sound, the thumb should remain outstretched, even at the heel.**
- **Let the wrist follow the bow in piano dynamics to obtain a smooth sound.**

All these statements were of great use for soft playing and gave me a more light French sound in my playing. This was what I was looking for and it has been very beneficial information when I have applied it in softer passages.

¹⁶ Alexanian, Diran (2003), *Complete Cello Technique: The Classic Treatise on Cello Theory and Practice*. Dover Books on Music, England. P. 36

2. Case study - Maurice Maréchal – Bach



In the picture above: Maurice Maréchal's¹⁷ bowing style from 1914.

One of my case study was about **Maurice Maréchal's version of J. C. Bach first movement of the Cello Concerto in C minor**. I chose Maréchal because he was a French cellist from the same time period that I am doing my research in and found it exciting to find out how he used his bow at that time. I did a listening observation of a recording I found on <https://www.youtube.com/watch?v=dt3Vs7TItEU>. Please see the recording of Maréchal's version of J. C. Bach first movement of the Cello Concerto in C minor, in the 2nd intervention cycle folder, in the attached DVD.

In Maréchal's version of the first movement, *Allegro molto ma maestoso*, I found out following information:

- **Contact between the bow and the string**
- **Short bows, in the lower part of the bow**
- **Natural flow in the bowings- medium bow speed**
- **Disadvantage: Heavy**
- **Clear articulation of bowings**
- **Advantage: No change of fingering while slur of 2 notes appear.**

All these statements were my observations and thoughts about the recording. To make sure I was accurate with my observations, I tried some of the statements on my cello which I couldn't hear clearly on the recording.

Before I listen to Maréchal's version I did a **video recording of my version of J. C. Bach: Cello Concerto in C minor - 1. Allegro molto ma maestoso** to find out the differences of how I use the bow in comparison to Maréchal in this movement. Also, I did that in order to see if there were any similarities between our bow elements which I was focusing in my research. In my version I found out that I used:

- **Longer bows/more use of the bow**
- **Faster bow speed**

¹⁷ Campbell, Margaret: The great cellists. London: Victor Gollanz Ltd. 1988. P.139 – 40, 203, 225

- **Lighter, although more aggressive sound appears**
- **Clear articulation of the bowings**
- **Advantages: End of phrases are more softer with a slur**

In conclusion of this case study, there were not many similarities between Maréchal's and my version but it was very interesting to find out so many differences and to be able to hear his use of the bow.

Please see the recording of my version of J. C. Bach first movement of the Cello Concerto in C minor, in the 2nd intervention cycle folder, in the attached DVD.

3. Case study- P. Bazelaire –Listening observation

I did a similar case study about Paul Bazelaire's version of Saint- Saens *Andante tranquillo e sostenuto* of the 1st Sonata for cello and piano. I did a listening observation of the second movement of his recording which I found from this link: <https://www.youtube.com/watch?v=B0ij7hOgvlk> (please note that the 2nd movement start from the 8:17 minute of the piece). Please find the recording the 2nd intervention cycle folder, in the attached DVD.

I did a version (which was an imitation) of the same movement in a video recording. This gave me a clear idea of how Bazelaire himself used his bow in this movement. I applied all the instructions I found from Bazelaire's method as there were plenty of *piano* passages in the 2nd movement.

Please see the recording of my version, in the 2nd intervention cycle folder, in the attached DVD.

4. How did I apply my knowledge to my praxis:

- I followed the instructions I read about in the three methods and I applied them with great care while playing.
- I did a case study of M. Marechal's J.C. Bach Concerto 1st movement in c minor, where I worked with elements such as articulation, use of bow, bow speed, sound quality and got an insight how a French cellist from that time used his bow. I did an imitation and my own version to find out the differences in the bow.
- The listening observation I did of P. Bazelaire playing of Saint-Saens 2nd movement of the 1st Sonata gave me an understanding and awareness of how he used his bow in the *piano* passages. I followed the instructions how to create dolce sound from his method and applied into my own playing.

5. The 3rd recording

In my third recording, I recorded two excerpts from the:

- J. C. Bach - *Allegro molto ma maestoso* of the Cello Concerto in C minor.
- C. Saint- Saens - *Andante tranquillo e sostenuto* of the 1st Sonata for cello and piano.

I could not find so many differences in the bow hold from my 2nd recording. I followed the instructions about the French bow hold from my first intervention cycle. Sometimes, during the recording, I had problems to find a regular connection between the bow and the string. I could control the bow better in some aspects, for example in the lower part of the bow.

Please see both the recordings in the 2nd intervention cycle folder, in the attached DVD.

6. Results & Reflection on the outcome:

- Good knowledge about the Vaslin, Bazelaire and Alexanian methods of the weight, the contact point of the bow and string, the bow arm, tone quality/sound, placing of the bow.
- Not good knowledge about the volume dynamics.
- I can apply the elements of the methods to my own use and teach them to others.
- Deeper understanding about the placing of the bow and tone quality/sound.
- Clearer and heading to the right direction.

5. The 3rd Intervention cycle

I divided my 3rd intervention cycle into 5 steps:

- Zero recording and reflection.
- Study of the three methods of Alexanian, Vaslin and Bazelaire, searching for a deeper understanding and explanation of **the spiccato bow and the staccato bow**.
- Final recording and reflection.
- How did I apply my knowledge to my praxis, reflection.
- Results.

I will explain the research process in each section with a description and a documentation.

1. Zero recording and reflection

Repertoire material I recorded for my zero point recording:

C. Saint – Saens: *Allegro Appassionato*, op 43 for violoncello and piano

Prélude No 2 from De Caix D'Hervelois Suite for Violoncello and piano (Harmonized by Alexandre Béon)

Please see the zero recordings of *Allegro Appassionato* and *Préludé 2*, in the 3rd intervention cycle folder, in the attached DVD.

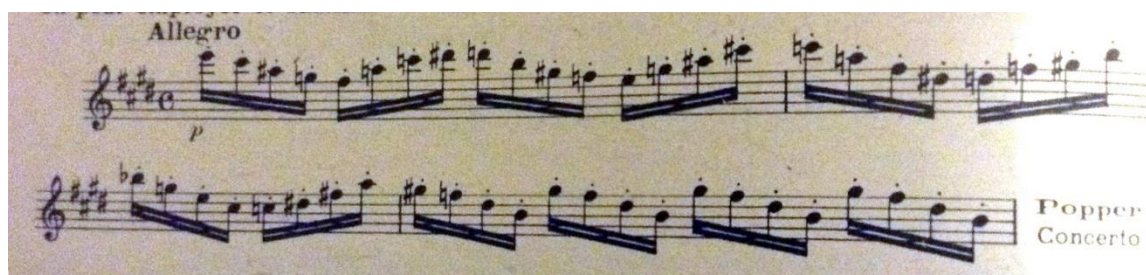
I chose the *Allegro Appassionato* of Saint- Saens because this piece has a lot of spiccato bows, which is one of the elements in my research and also for the reason that it is a French piece. I chose the *Prélude No 2* because it was marked “*sempre staccato*”, which I saw as a good choice since my other element is about the staccato bow. Béon who harmonized this suite was a French composer who lived around 1900, which I found interesting as it relates with my research question. I did the recordings before I had the knowledge of how to apply the spiccato and staccato bow from the methods, which I used for my research. I had a lesson with Jeroen den Herder where we tried out some different spiccato and bowings. After this lesson and my zero recording, I realized that I needed to research deeply in these two elements, therefore I decided to look into the methods from my data collection.

2. Study of the three methods of Alexanian, Vaslin and Bazelaire, searching for a deeper understanding and explanation of the spiccato bow and the staccato bow.

In **P. Bazelaire's method** I found out:

- While playing **spiccato**, it is necessary to use two-thirds of the bow. Followed by a fast, short, flexibly and rhythmic rubbed movement. The forearm remain relatively still. The bow hand have to hold the bow quite loose in order to make the bow swinging vertically. The spiccato will be bright, vivid and light by using the small rubbed movements and as a result it will start jump of itself.
- In **Spiccato**, maintain high forearm. With the small impulses you give to the bow results with a rebound jump by itself, which is **spiccato**.

Bazelaire recommends to practice the **spiccato** with this excerpt as it has a long serie of fast and light notes in *piano* dynamics.



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I found this excerpt-exercise challenging as it is a quick tempo in a high position, it is easy to be clumsy with the bow and not get it into **spiccato**.

Bazelaire recommends to practice the **staccato** with the first third of the bow with only one wrist movement of the bow, and the rest of the arm should be over as many notes as possible, biting with energy, shortly and the bow pressing powerfully the string. Eventually, this must produce a lighter staccato, precise, and it will be even faster than when the arm is hold (tensed) and more nervous.

In conclusion, the most important is the position of the forearm and being aware of the movement of the wrist.

In the **D. Alexanian's method** I found out a few interesting facts about the **staccato**:

- Firm pressure of the bow, by the thumb and the 1st and 4th fingers. Light touch with the 2nd and 3rd on the frog.
- For weak or medium intensity, the upper third of the bow should be used.
- General maximum intensity is *mf* in staccato.
- The right arm always accompanies the bow in it changes of place.
- Staccato is easier to play with (upbows) an up-bow, this is because of the natural law.

¹⁸ Bazelaire, Paul, L'enseignement du Violoncelle en France. Paris 1944. P.38

I found that these facts were useful to have an understanding about, especially the first one as I didn't analyze the pressure of the bow by each finger.

The information I got from **Alexanian's method** about **spiccato** was in some aspects quite obvious for me, but on the other hand, I felt more aware of how to apply the spiccato after I studied his method. Alexanian describes the spiccato with three words: light, rapid and dainty.

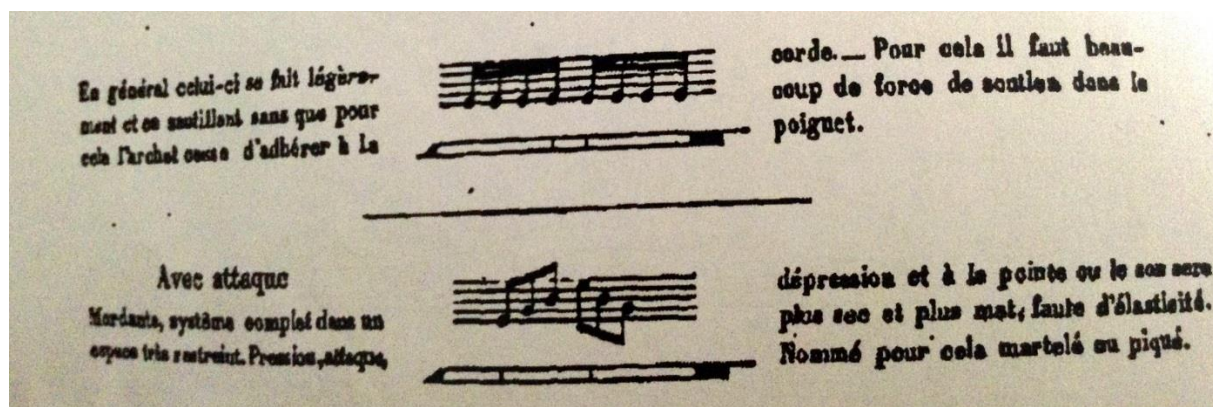
These are some facts that I found very valuable about the spiccato:

- The spiccato proceeds from centrifugal force
- The speed you get decides the equilibrium of its regularity
- Firm pressure of the thumb and 1st, 2nd, 3rd and 4th finger should be applied to the frog with lighter pressure.
- The horizontal movement of the bow should not exceed over 1, 27cm in spiccato
- It is important to let go of the wrist in order to receive an automatically fall of the bow.

In **Vaslin's method**, I had difficulties finding information about the **spiccato**. However I found one statement about détaché notes with I believes relate with the spiccato bow very well;

*The rapidity of lively notes forces the restriction of the movement of the arm. The best part of the bow is found in the middle, because there the hair, having all its elasticity perfectly matching that of the string can in a circumscribed space obtain an open, rich, albeit short, sound.*¹⁹

Vaslin saw the middle of the bow a perfect place for détaché passages. Vaslin clarifies this with a bowing diagram:



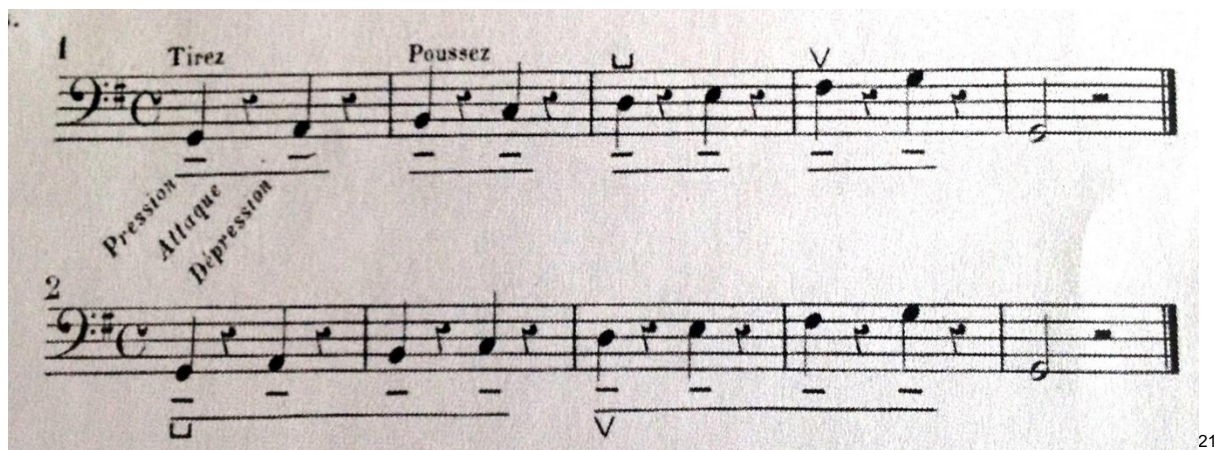
20

In my opinion, the indications of where you place the bow for détaché works very well for the spiccato bow as well. Therefore, I found this diagram useful.

In **Vaslin's method**, I found a good exercise of how to practice the **staccato**. He explains how to do the staccato with three words: pressure, attack and relax. In the down-bows is important to pull the bow and in the up-bows, push the bow.

¹⁹ George Kennaway, Playing the Cello, 1780–1930. University of Leeds, UK, page -108

²⁰ George Kennaway, Playing the Cello, 1780–1930. University of Leeds, UK, page -109



Vaslin himself started to research on the staccato technique with his thought “procédant toujours du simple au composé” (always proceeding from the simple to the complex). He gave the same importance to the rests as to the notes, because one should find the pressure of the bow in between the rests. Vaslin suggested not to try to play staccato too fast in the beginning when you learn how to play staccato, as articulation escapes and confusion happens. Slowly practicing of the staccato will give us a feeling of security in the wrist muscle and also while playing and holding the bow.

4. Final recording and reflection

In my final recording, I recorded two excerpts from the:

- C. Saint – Saens: Allegro Appassionato, op 43 for violoncello and piano
- Prélude No 2 from De Caix D'Hervelois Suite for Violoncello and piano (Harmonized by Alexandre Béon)

In my final recording of this intervention cycle, I felt that my idea of staccato and spiccato was clearer than before I started this intervention cycle. I was looking forward to apply all the new knowledge into the pieces for the final recording. I found out that my spiccato and staccato had improved as I used smaller movements of the bow than before. In the staccato, I felt I had a more biting sound in the final recording. The spiccato is still hard to control in my practice but I felt that I was more aware of the jumps and I could control it better than in the first recording.

Please see the final recordings of *Allegro Appassionato* and *Preludio No 2* in the 3rd intervention cycle folder, in the attached DVD.

5. How did I apply my knowledge to my praxis, reflection

I followed the instructions and exercises I read and found out in the three methods. I applied them with great care while practicing, I felt that my awareness and control was improved after applying these instructions and exercises of the staccato and spiccato bow.

²¹ Vaslin, Olive, L'art du violoncelle conseils aux jeunes violoncellistes sur la conduite de l'archet. Paris, 1884. P.19

6. Results

- Greater awareness and control of the spiccato and staccato bow.
- Better knowledge how to explain the two elements for other cellists.
- Deeper understanding of how I apply staccato and spiccato in my own playing.
- More knowledge of exercises that I can use for the spiccato and staccato preparation.

Part 5: Appendices

3. Network

- **Jeroen den Herder:** My cello teacher Jeroen will contribute with great knowledge and experience about the French cello school to my research project.
- **Herre Jan Stegenga:** Apart of being a great musician and cellist, he did his studies in Paris; therefore he can be a good support for my research.
- **Ivan Nogueira:** Ivan is my research buddy, his research project is similar to mine, therefore I believe we can help and support each other very much.
- **Job ter Haar:** Job is my study coach and he has a lot of knowledge and experience about my research topic which is very helpful for me.

4. Reference list

- **Books**

- Campbell, Margaret: The great cellists. London: Victor Gollanz Ltd. 1988
- Ginsburg, Lev: History of the Violoncello: Western Violoncello Art of the 19th and 20th Centuries.
- Tortelier, Paul: How I play How I Teach. Fourth Edition 1988, London.
- George Kennaway, Playing the Cello, 1780–1930. University of Leeds, UK

- **Methods**

- Bazelaire, Paul, (1920) Quelques Notes: sur different points importants de la Technique Generale du Violoncelle. Editions Maurice Senart et Cie. Paris.
- Alexanian, Diran (2003), Complete Cello Technique: The Classic Treatise on Cello Theory and Practice. Dover Books on Music, England
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- Bazelaire, Paul, L'enseignement du Violoncelle en France. Paris 1944.

- ***CD Recordings***

- The Recorded Cello, Volume 2, (Pearl records).
- Maurice Marechal Portrait, Recordings from 1929 to 1943 (Iron Needle)

- ***Youtube links***

- <https://www.youtube.com/watch?v=B0ij7hOgvlk>
- <https://www.youtube.com/watch?v=dt3Vs7TltEU>

- ***Images***

- All the images contained in this research are taken from Google Images.