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SHADOWS


The sounding part of this project can be found at KMH’s digital library.
Abstract

This project is based on collaborations between the clarinettist Maria Victoria Fernández and the composer Manuel Marí. The process of collaborating is described and two new pieces are composed as result. The first of the piece is called “Cycles” and it is a solo piece for clarinet, while the second piece is called “Shadows” and it is a piece for clarinet and live electronics. The concept of perception is explored and new techniques have been addressed to make this new music accessible both to new audiences and performers interested in this field.

Keywords: perception, collaboration, process, composer, clarinet, live electronics, audience, technique.
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1 INTRODUCTION

1.1 ORIGIN OF THE PROJECT

As a music student, I have been part of different environments through my education. I have even tried different styles to be able to choose the one that could fit better with my personality: jazz, classic, contemporary, folk… And it seems that every person needs to choose one field to study in an academic institution. For that reason, I decided to study classical music, the one I enjoy the most.

On the other hand, students are told that we need to have different skills and that we should be versatile even though we are “focused” on one specific type of music. We need to be able to play soloist pieces, but also chamber music. This idea made me wonder if it was possible to have this broader mind also exploring other music. Maybe it would be too much for someone to be “specialist” in many genres of music, as much time is needed to really go deeply into the different ideas. But this does not mean that we are not allowed to explore other kinds of music to find also new ideas and inspiration that we could use in our favourite kind of music.

This is what happened to me with contemporary music. As far as I can see, the fact that I chose to study a classical education does not mean that I am not able to explore contemporary music. In fact, every time that I have played contemporary music, I could feel how my technique improved and also how I started to find new ideas or new ways of performing that could be applied later in the classical repertoire. In the end, it has helped me to have a broader mind and to be more open to new ideas and suggestions.

For that reason, I started to think about some aspects of the contemporary music that I would like to explore, also looking for new sensations that I could use when performing classical music. There were many aspects that I wanted to explore, so I thought that it would be difficult to put them all together in the same project. However, I had a conversation with a composer and we came up with the idea of collaboration, which could be really useful for me as performer to see how the process of composing a piece is carried out and to learn from the perspective of the composer. Besides, this composer could help me to explore the field of the contemporary music, as he is specialised in it, although he got classical education before.
1.2 Project Description and Main Question

This project is based on the external collaboration with a Spanish clarinettist and composer, Manuel Marí Altozano, who has studied a Master Degree in Music Production in Málaga (Spain).

The main goal of the project is to elaborate a new piece, which will be a contemporary piece for clarinet. But this is not the only goal, because we want to organise a concert specially focused on the audience and its perception, in which the new piece will be included. That will be the final concert.

The basic conception to compose the new piece is by creating different atmospheres and having into account the sensations of the public. That means that we will have the perception of the public as main factor: how the public is perceiving the piece. Because of that, we will have also into account the place and we will use different resources. In fact, the piece will include the use of live electronics, although we can agree on some changes during the composition process.

Communication will be crucial for this project. I, as performer, will be in direct contact with the composer, so we can decide what to do or not during the whole process through organised meetings and discussions, also having the approval of my coach at KMH. In that way, I will have the opportunity as performer of also being part of the creative process of composing the piece and also making suggestions.

As I mentioned, the place is also important for this project, especially because live electronics are going to be included. For that reason, the new piece is planned to be performed at Lilla Salen. In that way, we could use resources that this room is offering us, such us the huge number of speakers. Therefore, we will have the opportunity to add new ideas and to be more flexible with the final piece, as the idea of the concert will be also innovative for the audience.

Because the main focus of the project is the public, we would like to involve it in the piece. In that way, the public could even move during the concert to have different perceptions and also write their thoughts after the concert. Besides, the fact of using different speakers will mean that the sound will come from different places, so it will be the public who will decide where they want to listen to the concert and depending of that choice their perception will be determined.
With this project I would like to collaborate with the musician society by helping to compose and performing the new piece, but also exploring new sounds, sensations and resources, which could inspire other composers in the future or even performers to perform pieces from a different point of view. For me, this is also an opportunity to explore how live electronics can be added to my performance, to explore new sounds, new ways of performing and also learn how to interact with the public. In the end, the main QUESTION I want to answer with the project is:

How is the process of collaborating with a composer to elaborate a contemporary piece for clarinet that includes live electronic? How could that be helpful for other musicians?
2 BACKGROUND

2.1 THE CONCEPT OF PERCEPTION

As it has been described in the previous chapter, the main idea of the project is focused on perception, so it becomes necessary to define what this concept involves according to what other authors have written about. Actually, perception can be applied in different ways as a concept and we usually tend to think about the five senses of our body when we refer to it. However, this is a music project. Therefore, this theoretical part is going to describe only the part related to the human ear, since this is a fundamental sense in this field.

The human ear has the property of capturing sound and of carrying out its central processing in the auditory cortex to determine its origin and location, and to identify the type of object, person or animal that produces said sound (Talero et al., 2004). From my point of view, this means that both the ear and the brain will be involved in the act of hearing, which means that both factors must agree to interpret the information we perceive from the outside. In fact, sometimes could happen that we hear a sound somewhere, although we are not able to know where it comes from, which makes us feel confused because our brain cannot understand what is happening at that determined moment and tell us the information we want to know.

On the other hand, we have to consider that every person is different, which means that both the physical circumstances (ear canals, brain structures...) and the psychological circumstances (e.g. feeling sad) can affect how the person is interpreting the sound perceived. Actually, depending on the type of musical stimulus presented, different brain areas are activated depending on the perception that is evoked: memories, images, association of words or related feelings, etc. (Talero et al., 2004).

Therefore, how we listen depends also on ourselves and even on our personal and cultural background. It will not only depend on that, but also on our willingness to listen to the sound. According to Cross (1998), the idea of musical perception is essentially conscious and volitional. And that is why our psychological circumstances are involved, because they will determine our willingness to listen to a concert or not and in which way. In fact, the idea of perception as involving involuntary and non-conscious processes is common to virtually all psychological domains (Cross, 1998).
For those reasons, we can find different performances of the same pieces and different opinions about which is the best way of performing them. It is not only a matter of subjective opinions, but also it depends on how these people are perceiving the piece, both when they perform and when they listen to it. It seems that only a small number of analysts have devoted much attention to perceptual issues (Cross, 1998). However, this lack of theoretical background is not an obstacle for composers to use perception in their pieces and make the public experiment different sensations.

2.2 HOW COMPOSERS HAVE USED PERCEPTION

As it has been described in the previous section, there are still many aspects related to perception that researchers could look at in a deeper way. In fact, according to Bauer (2001), only a few components of any individual sound seem to have perceptual effects, yet researchers have to grasp how these attributes combine in perception. However, we know how some aspects related to the sound are perceived. For instance, the right hemisphere of the brain is related to pitch and timbre analysis and the left hemisphere to rhythm and melody recognition (Talero, 2004). Therefore, those will be the aspects that the composer can work with when composing their pieces.

In contemporary music of the most contrasting orientations, attempts to hide the very figures which compose the musical texture itself are increasingly common (Drott, 2011). This means that the composers are trying to hide how the piece is built, which will make the listener to perceive it as a whole and not being really able to separate the different lines to understand what is happening at every moment.

However, this idea is not something new, because this is the same effect that micropolyphony produces, already applied by Ligeti during the 20th century. In fact, micropolyphony combines exactly those aspects that affect our perception: lines, rhythms and timbres. We could even say that what the listener is expected to appreciate about Ligeti’s music is not keeping track of every single rhythmic line but, instead, the overwhelming totality of the several polyrhythmic layers (Laparidis, 2012). This means that the music we are listening to at that moment is not really understood by our brain, as we are not able to perceive different lines individually, but just the final result of the piece.
Nevertheless, vital to this way of conceiving micropolyphony is the fact that lines, figures and melodies do not disappear from this variety of textural music, but are ubiquitous (Drott, 2011). This can help to create different textures or atmosphere that can change in a way that is not so obvious for the listener as in other kind or pieces with a really clear structure for our perception.

On the other hand, even though this whole is not perceived as individual lines, there will always be some patterns that our brain will find to make the music having a sense for us. In fact, in a process of music perception, one can observe that there is tendency to prefer frequently occurring events, although this preference is a result of predictability rather than frequency (Humiecka-Jakubowska, 2010). For that reason, composers can use those mentioned resources using different patterns to help our perception, or could also use contrast to make lines even vaguer, which is also a huge influence on music perception (Humiecka-Jakubowska, 2010).

Therefore, perception has been an important part of many compositions, especially since the 20th century when already Ligeti made use of micropolyphony, although this concept is still applied today by many composers. In fact, there are many specific examples related to this, which will be explained in more detail later in this project.

2.3 Electroacoustics in the Clarinet

In this section “electroacoustic” is discussed. But for that, the first issue involved would be to actually define what the meaning of this term is. In fact, electroacoustic music is a broad term used to describe the process of composition as opposed to the sonic environment of the music (Betker McIntyre, 2020). In that way, the term is used to distinguish the tools or resources that appear in other kind of compositions, mainly referred to technology, which will be applied to traditional instruments, such as the clarinet. And those new tools and resources are, in fact, a consequence of the development of electronic music because of the incorporation of acoustic instruments and live computer processing during the last decades (Betker McIntyre, 2020).
It is maybe for those reasons that the term is defined in Grove Music as “music in which electronic technology, now primarily computer-based, is used to access, generate, explore and configure sound materials, and in which loudspeakers are the prime medium of transmission” (Emmerson and Smalley, 2001).

On the other hand, the definition of the term is evolving itself as the own tools used for that continue developing nowadays. In fact, it is this development of the technology what is making this kind of music becoming more and more popular because it is also becoming more accessible to use those resources for music. And those resources do not need to be something really complex, as it can be just a computer. For that reason, since computers are now a household item, it is more feasible than ever to incorporate live electronics into a performance (Betker McIntyre, 2020).

However, as it is still developing, electroacoustic music is currently facing a serious sustainability problem due to the several technological generations and revolutions that have gone by in the meantime (Bernardini and Vidolin, 2005). Therefore, those technological advancements can make hard to be able to perform a piece in the long-term keeping the original way of performing it, which make performers face serious obstacles when the required equipment or technology becomes obsolete or unavailable (Brooke, 2004). This could be thought as trying to be “historically” correct for the performance, but the problem can be bigger in this case. For example, it could be possible that there is a specific file that we are supposed to use for the performance, but the current computer software cannot even open it because it belongs to an old version of it.

Obviously, the term of electroacoustic music is applied to an endless number of different pieces that involve different problems, although there are some common features. And because of those common features, there are composers who are trying to keep this sustainability of the pieces through notation. As Estibeiro (2017) establishes, it should be that the notation of the electroacoustic part mirrors the properties of traditional notation both prescriptive and representational. It must be intuitive to understand, and it must be transferable to other compositions in order to encourage the growth of new performance practices.
For that reason, it seems that this music is leading composers to think about new solutions to solve the emerging problems. We already discussed sustainability and inclusion of technology. But actually, that also affects to our perception, as this music can be perceived in different ways depending on the used resources for the different pieces (Betker McIntyre, 2020). And of course, all those mentioned issues could appear in documents related to pedagogical purposes. However, there are few pedagogical resources for students and teachers to use when preparing for, performing, or creating electronic or electroacoustic music (Betker McIntyre, 2020), which could be a problem to be solved in the future.

2.4 Specific Examples of Collaborations

As it has been mentioned, this if not the first collaboration carried out between a composer and a performer. For that reason, some examples of other works are described in this section of the project. In fact, those examples have also been an inspiration to organise this project, as we would like to be an inspiration for others in the music community. Because the composer collaborating in this project comes from Spain, the compositional surrounding world he has been learning from for many years also comes from this country. And one of the composers that had great influence on him has been José María Sánchez Verdú.

Sánchez Verdú is a Spanish composer who was born in 1968. He is a composer, musicologist and conductor, graduated in Frankfurt (Germany), although who also studied Law in Madrid. He has been awarded multiple times both nationally and internationally for his works, which are actually edited by the known and prestigious brand Breitkopf & Härtel (Sánchez Verdú, 2016).

This composer is used to collaborate with performers, with orchestras, with conductors… In the end, he is used to collaborate with the music society, which led him to become a known composer, even though the music he composes is contemporary, the kind of music that may seem to reach a more reduced number of audience. This means that his work has contributed to the renovation of the contemporary music (Álvarez-Fernández, 2011).
This case is similar to Mark André, a French composer born in 1964 who lives in Germany. The central concept of this composer is the question of disappearance, which shapes his approach to sound, form, and subject. He is a sensitive explorer of sound, both in his delicate and concentrated chamber works as well as in his orchestral and music theatre pieces (Karsten Witt, 2021). This means that this composer has collaborated not only with musicians, but also with actors and other artists, which can make his music reach even a broader audience and have a holistic point of view.

Nevertheless, one of the works that has been more inspiring to carry out this project is in fact the piece “Walk in Parts” composed by Rainer Linz. This work was written for a number of clarinettists, who would walk about the stage and play parts of the score as soloists, in duos, trios and other configurations. However, it was finally decided to replace many of the live instruments with pre-recorded ones, sending them to 5 different speakers placed in different parts of the auditorium (Hope, C., 2011). In this way, the piece became in a solo piece for clarinet and electronics, in which the performer himself reappears around the room in multiple locations, but only sonically.

This last example added the perception as a fundamental role in the piece that was being performed through the use of pre-recorded sounds, which is also a similar conception that will be applied in the final piece of this project, although with a different configuration and using live electronics. This means that other works were really an inspiration for this project, which gives value to the importance of being connected to each other in the music community.
3 METHODOLOGY

This project is organised in three different parts. Firstly, it is necessary to do a research and find information to elaborate the background described in the previous section. Research includes both the concept of “perception” and how composers apply it in different pieces. Besides, information about the use of electroacoustic in the clarinet is included, as it is a resource that will be used in the final piece and it is one of the goals of the project to explore this field.

On the other hand, information about collaborations between performers and other composers is included in the first section. Of course, this is not the first project based on this kind of collaboration, so it could be really helpful to see how the process works and try to be as efficient as possible, which will make the final result to have a really high quality.

In fact, as it has been reflected in the background, there are other projects about performing, projects about composition and projects about electroacoustic, but not these three aspects at the same time in a clarinet piece. Maybe this could then be an opportunity to put everything together for the first time and get an innovative point of view which could even attract new audiences to the concert or inspire other composers and performers.

Having that into account, some meetings with the composer are organised to do the second part of the project, in which we are going to make a preliminary piece, so we can discuss and make changes during the composition process. Besides, that piece is important for me as performer, so I can get used to the way of writing and making notes in the score by the composer. This phase also includes the recording of the piece, so it can be used as an example of the clarinet’s technical issues and how to perform them according to the final result expected by the composer.

Furthermore, there is a meeting organised just after this second part. In that meeting, how the process worked for this preliminary piece is discussed to get some conclusions about what worked or not. In that way, we are able to take advantages of our strengths and improve our weaknesses before composing the final piece, so our relationship as composer-performer can also become more efficient.
Finally, in the third part of the project the final piece is going to be composed and performed. For that, we will take into account the feedback from the previous piece and we will come up with new ideas for this one. In fact, this final piece will also include electroacoustic, so it will be necessary to begin to compose first the electronic part and record it to be able to perform the final piece in the concert. This could be done in the studios of KMH or in a room with different microphones, depending on the demands of the composer. The main goal is to keep the quality as high as possible and to really get the result expected by the composer.
4 PRELIMINARY PIECE: CYCLES

As it has been mentioned, a preliminary piece has been composed as first collaboration with the composer. This piece would help us to learn how the process of collaborating works and to come up with ideas that we could try to see if they could work for the final piece or not. This will make the final piece’s process more efficient.

In fact, as this part of the project already involves both mentioned aspects, and an interview focused on Cycles has been carried out, which can be found in the appendix at the end of this project together with the score of the piece. Therefore, the information described in this chapter related to the composer’s thoughts is included in that interview.

4.1 ORIGIN AND COMPOSITION

Starting to compose a new piece can be tricky for some composers. According to Manuel Marí (Cycles’ Interview, 2021), there can be many factors involved. In that sense, the process could start just by trying to look for a specific sound or experimenting with an instrument. And that part becomes the centre of the composition.

In this case, the factor that led the composer starting to compose the piece was actually the shape of a wave. The composer was already working on another electronic piece and he had to master an audio for it. At that moment, he had to zoom in on the sound, which made him see how it was formed through thousands of dots with the shape of a wave (Cycles’ Interview, 2021). Therefore, the whole piece is based on that wave formed by the dots or bits, which will form, in turn, a pattern that the listener can recognise through the whole piece. The image looks like this:
For that reason, the piece is called “Cycles”, written with those bits or dots of the wave as it is written digitally. Commonly, those bits are tapped with the numbers 16, 24 or 32. Because of that, the waves of the piece are also made with notes with the same length, which means, 16, 24 or 32 notes (Cycles’ Interview, 2021). And this is a process that appears many times in the piece, as a whole, as a cycle, which keeps the coherence of the piece not only on a small-scale, but also from a holistic perspective.

In this way, we could say that it was then the image of the digital sound what actually made the composer start the piece relating that image to the live sound, in this case, performed by solo clarinet. This is also interesting in the sense that we can actually see those waves and that image reflected on the sheet music, which also tries to reflect the true reason of the piece to be like it is.

Besides, as the composer is also a clarinettist, he was able to play the ideas he had while he was composing the piece. In fact, some of the ideas he had were played before being written, which made the composition process a bit different from the usual way in which the idea is written and played after (Cycles’ Interview, 2021).

4.2 TECHNICAL ISSUES

The composer of the piece decided to include really specific instructions of how to perform some parts of the piece and also detailed descriptions about the meaning of some notes included in the sheet music. In fact, according to what it was said in the interview (2021), he suggests that any composer should be extremely detailed with what they want to listen to, so the person performing the piece is able to reflect the original idea from the beginning. In fact, if that is not done properly, people will be able maybe to do a performance that is close to the idea, but it will take more time for the person to get the result and it will not be as faithful as with specific instructions from the composer.

Because of that, the piece is thought to be performed by any clarinettist following those specific instructions. And that is actually another goal that we were aiming for with this preliminary piece. We wanted it to be as clear as possible for the performers interested in exploring this kind of music. For that reason, an explanation of the different technical issues that appear in the piece is described below. A definition of them and some perform advices are included.
Besides, because the piece has been already published on YouTube, specific examples of the elements described can be found in the following recording: https://youtu.be/Z56XWGTUp5E. This recording is also available at KMH’s digital library and will therefore be the recording to which references will be done.

4.2.1 Tongue Height

Different tract configurations give strong effects on timbre and considerable effects on intonation, independently of the reed (Wolfe and others, 2003). This means that the elements forming the inside of our mouth also make changes in the sound when playing an instrument such as the clarinet. And the tongue is actually the main element of the oral cavity (Drake, Volg and Mitchell, 2005).

For those reasons, the tongue height is included in the piece. In fact, it is the first element described in the instructions written by the composer (see appendix). The height of the tongue is described in a line above the average staff including three different heights: near to the palate, intermediate and over mouth-floor. Those three heights can be listened to, for example, in the ten first seconds of the recording.

Besides, other vocal tract changes are included when introducing vowel configurations, as the ones that appear in the first line of the second page of the score. Those are written like this: /(<e>/; /(<i>/; /(<u>/. Changes must be as clear as possible, like for example between minute 1:12 and 1:30.

4.2.2 Flutter tongue, slap tongue and teeth-on-reed

In these cases, references to the inner elements of the mouth are made again, especially to the tongue, although also to the teeth in the last mentioned technique.

First, flutter tonguing is applicable to all members of the woodwind instruments. For the clarinet, it is produced either by rolling the tongue on the upper palate, as if pronouncing d-r-r-r, or by a uvular undulation in the throat facilitated by raising the back of the tongue slightly in the mouth (Rehfeldt, 2003). For instance, this appears on page five of the sheet music, in the recording around minute 5:27.
On the other hand, slap tongue is an old-time jazz effect. It is executed by placing a large portion of the tongue on the reed’s tip and suddenly releasing, often accompanied by a drop in jaw pressure, simultaneously with the initiation of the air stream - literally slapping the reed on the mouthpiece (Rehfeldt, 2003).

Besides, there are “key slaps” in the piece, although those are only made by pressing the keys without playing, just with the fingers. Both slaps are found, for example, at the end of page four, which in the recording is related from minute 4:10 to 4:16.

Last, teeth-on-reed is an effect maybe not as common as the previous ones. In fact, I have to say that this one was completely new for me before practising this piece. According to Rehfeldt (2003), when we place the teeth lightly in the reed, we can produce a thin, high-pitched, whistling sound, although the pitch is largely unpredictable. This effect only appears only once in the piece, written on the fourth page and included in the recording around minute 3:02.

### 4.2.3 Microtones

According to Rehfeldt (2003), intervals smaller than a semitone have long been a part of the music of Eastern cultures, and quarter tones and other microtonal divisions continue to play an important role in contemporary music practices.

In this case, all the microtones of the score are specified by the composer by using different fingerings. He uses a notation system for that based on the one used by Alberto Posadas, who is a Spanish composer and uses an extremely detailed notation system for extended techniques. However, Alberto Posadas is not a clarinettist, so there are some small details that could be improved. That is what Manuel Marí did because he is, so he took that notation system as a base and then made one himself with the improvements for the clarinet notation (Cycles’ Interview, 2021).

In fact, that notation is explained through a diagram included at the end of the performance instructions, in which every hole and key that the performer might use is related to a number or a letter, expressed after through the same diagram or just through small notes written in boxes above the staff with that designation. Examples of microtones can be listened to in several moments of the piece, like between minute 0:18 and 0:30 of the recording, which can be found in the first page of the score.
4.2.4 Multiphonics

Multiphonics is the acoustical phenomenon of producing two or more simultaneous pitches and the list of works employing multiphonics has grown enormously (Rehfeldt, 2003). This is applied to woodwind instruments, and more specifically to clarinet. According to Rehfeldt (2003), the matter of how multiphonics work is quite simple. Fingerings for all the fundamental pitches have the capability of producing, with lip/jaw manipulations, upperpartials according to the standard overtone series.

In this sense, we will find in the piece some multiphonics that are supposed to be played with the natural fingering of the fundamental, but produced through some changes in the embouchure and air pressure, such as the ones written at the end of the third page of the sheet music, which can be listened between minute 3:14 and 3:32.

On the other hand, because the pitch is sometimes not as easily predicted as it might appear (Rehfeldt, 2003), most of the multiphonics introduce some change in the original fingering to get the right pitches in an easier way. Those changes are introduced then through the same notation system that is used for the microtones. Some examples of this appear at the beginning of the third page of the sheet music, which in the recording is related to minute 1:55 to minute 2:50. In fact, some of those multiphonics include microtones in their notes, so it makes sense to use the same notation system for both techniques to make it coherent for the performer.

4.2.5 Harmonics

Examples of harmonics can be found in several places in this piece, such as in the last line of the fourth page of the sheet music and the beginning of the fifth page. This part is related to the recording from minute 4:22 to 5:20.

In this case, the fingering used is the one from the fundamental note, while the upper harmonic is supposed to sound as a consequence of changes made in the air and lips pressure, as explained by the composer in the instructions. Something similar can be found in contemporary pieces and études, such as the ones written by Dolak (1980).
4.2.6 Circular breathing

This is an ancient technique that allows a constant flow of air by alternating standard forced exhalations with a false exhalation, when a volume of pressurised air is pushed out by the cheek muscles, while simultaneously the player inhales a short breath through the nose, enabling the return to the usual forced exhalation (McCorkill, 1986).

This technique is expressed in the sheet music through the sign of a circle with a small arrow, such as the ones on the second page. This section can be listened to in the recording from minute 1:20 to minute 1:50, although it is a technique that is more difficult to appreciate only through audio, as the sound is kept while only a short breath is taken. However, it would be easier to recognise it in live or through a video, as we can see how the muscles in the cheek push the air out while inhaling the new air.

For these techniques, the composer has tried to be as specific as possible in the performance instructions, as I have also tried to be in this section, so any possible performer can get a clear idea of what it is supposed to sound when playing the piece, and will guarantee the sustainability of the piece in a long term. Besides, it will also make the piece more accessible and understandable to musicians that are not specialists in this kind of music.

Generally, the composer tries to be as specific as possible when composing for any instrument, but he is obviously more specific with clarinet as it is the instrument he knows by experience. However, in the case of composing for other instruments then he asks other professionals to see if the ideas he had are possible or not and to make it as natural as possible for the instrument (Cycles’ Interview, 2021). In that sense, we could say friends or generally being helped by the music society is important when composing or making collaborations like this.

4.3 Publishing

“Cycles” was already composed at the end of 2020 and it was performed, recorded and published by ourselves on YouTube at the beginning of 2021. The interview was carried out a few months later, so we could get some conclusions after the first collaboration in a project together.
According to the composer, he does not usually make changes in the pieces after publishing because he tries to invest as much time as possible from the beginning in the composition and also tries to review everything multiple times before publishing (Cycles’ Interview, 2021).

Nevertheless, this does not mean that he is not checking the pieces after a while. However, what he does after is to listen to them and make a reflection about them. In that sense, that helps him to take notes and try to improve the mistakes in the next composition to get a higher quality. For that reason, we decided to elaborate this piece, so we could go through that process together and make improvements for the final piece. Of course, this helped me as a performer to learn the notation system from the beginning, which would make easier to understand the final piece.

In fact, the composer is thankful for this publishing, as it helps him to promote his work internationally and said how useful it was for the final piece. In fact, the notation system he used to compose the piece was still developing when he started the composition, which really helped to the final establishment of the system (Cycles Interview, 2021). In this sense, we would complete a first step of our collaboration and be able to use the same notation system in the final piece, making the final process coherent and easier to understand for me as performer and for him as composer.

On the other hand, because the composer is a clarinettist, we could say that the process of composing this piece led us to a collaboration and dialogue not only between a composer and a clarinettist, but also between two clarinettists, which made the whole process even more interesting and worthwhile.
5 FINAL PIECE: SHADOWS

The last and final step of the project was to elaborate the final piece. This would be a result both of the feedback got from the preliminary piece and the use of new resources that we decided to apply now focused on the final concert. The preliminary piece helped us to be more efficient and also to me as performer to understand more easily the ideas that the composer wanted to suggest from the beginning.

Applying the same process as in the previous piece, an interview about the piece has been carried out, which can also be found in the appendix at the end of this project together with the score of the piece. Therefore, the information here described related to the composer's thoughts is included in that interview.

5.1 ORIGIN AND COMPOSITION

“Shadows” is a piece that was thought from the beginning to be performed in Lilla Salen and include the use of electronics. In that sense, the process of composition was a bit different compared with other pieces because it was not external elements that lead the composer to start the piece, but the project itself and the idea of using electronics for the clarinet. Therefore, the composer had to imagine from the beginning how the performance would be, he had to imagine me already playing his piece in the concert.

The first thing that the composer thought about was the electronic processes that he could use for the piece. After, he thought about the room and imagined different images of myself performing the piece, images that were actually “flying” around the room, moving around, making circles, maybe appearing only in a corner…as if they were “shadows” of myself (Shadows’ Interview, 2022). In this sense, we could say that the name of the piece comes from a really abstract idea originated in the composer’s head due to the situation of having to compose a piece for such a special room as Lilla Salen with such an important amount of speakers above the audience.

According to Manuel Mari (Shadows’ Interview, 2022), he first composed the clarinet part and thereafter added the electronic part of the piece. Consequently, we could think that he composed first the easiest part for him to be able to focus later on the new part, the live electronic.
Nevertheless, this is not the first time that the composer is using electronic in a piece, but it is maybe the time that he got to compose so deeply including electronic (Shadows’ Interview, 2022), which also contributed to his development as composer, especially because of the use of electronic in acoustic instruments. This means that the piece would allow not only me, but also the composer, to explore the electronic as a resource that can be used in a concert.

Of course, not everything applied would be new for us, as in the written music, the notation system and most of the clarinet technical difficulties appeared already in the preliminary piece. However, this piece means going one step beyond the previous process already carried out.

5.2 ADDED TECHNICAL ISSUES

Most of the technical issues described in the preliminary pieces were decided to be included in the final piece, except for the slap tongue and the teeth-on-reed, as they were considered not as interesting as the other techniques for this piece and are also the most unpredictable ones. Therefore, most of the technical issues are already explained in the previous chapter.

Nevertheless, there are also new technical issues that we decided to add for the final piece, which are explained below. Keeping the coherence with the previous chapter, an audio of the piece has been recorded, so examples can be listened in the recordings available at KMH’s digital library.

5.2.1. Sounding breaths

This technical aspect is one of the easiest ones we can find in the whole piece. As explained by the composer in the performance instructions, it consists on a normal breath made without the clarinet, loudly using the given consonant and vowel as mouth shape. An example of this is written in the second line of the piece, where we find “/h(a)” above some notes. This means that we will need to make a breath using the “h” and our mouth in a shape of “a”. This can be listened to in the recording from minute 0:28 to 0:48.
5.2.2. Subtones

A subtone, as the own word indicates, is a tone or sound played below the standard range for performance. That means that the note will be played very softly and with little air pressure, usually in a low register (Merriam-Webster, 2022). Some examples of this can be found in the last line of the second page of the score, which in the recording is related to minutes 2:15 to 2:30.

5.2.3. Live electronic

This element is one of the main reasons which lead to elaborate this project. In this case, the piece includes live electronics. One part of that involves sounds that I have recorded myself with the clarinet. The recordings were made with a small device, which was a Sony HDR MV1 Music Cam Review and after edited through Reaper, which is free software commonly used by many musicians. The device is a quite simple camera that includes two small microphones, which means that recording this part is also accessible for other musicians who want to perform the piece, as it does not require specific or sophisticated equipment for the pre-recorded sounds.

This part of the electronic is indicated at the bottom part of each line in the score. In fact, this part of the electronic is organised, in turn, in two different parts. Both can be found in the sounding part of this project.

Firstly, the whole piece has been recorded in one single audio called “Electronic - 1”. That audio is actually the one that has been used to describe the examples of the technical issues previously described. Secondly, there are small cells of the piece that have been recorded in small audios. As there are many different cells, those have been called in the same order they appear in the score as “Electronic - 2.1”, “Electronic - 2.2”, and so on.

These recordings have been a new part to elaborate for me, as the preliminary piece was written for solo clarinet and did not include any electronic. Furthermore, apart from this pre-recorded sounds, synthetic sounds and other effects will compose the live electronic. All of them will be used in the final concert, which will be described later.
5.3 PROCESS OF COLLABORATION

The main goal of this project was to collaborate with a composer to understand how this process works and learn from the experience. For that reason, in this part of the project I am going to reflect on the process, so this can also become a useful experience for the music society.

This collaboration has been carried out between a composer and a clarinettist. However, it is noticeable that the composer is in this case also clarinettist, which affected the project in a very positive way. In that sense, the technical issues were much clearer from the beginning. Besides, I have been able to ask to the composer about how to play or not certain parts of the piece, as he is also able to play them himself.

This process started by suggesting ideas about my vision and his vision of the project, followed by the composition of the preliminary piece. For that one, I practiced several months, as some of the technical issues were new for me, so I needed time to get used to them, both in the way of playing and also to see how they were written in the score. In fact, as the composer said (Shadows’ Interview, 2022), the collaboration of the previous piece really helped him to establish a clear notation system that was lately applied to compose the final piece, which made the collaboration for the final piece more efficient. Furthermore, it did help not only with the notation system, but also to establish a fluent communication system for the whole process of collaborating.

On the other hand, this also made me start to have a broader view from the clarinet technique because some of the sounds I was looking for were the opposite than the usual ones played in the classical repertoire. A good example of this are multiphonics played by changing pressure, as their goal is to basically “break” the sound, which in the classical repertoire would be just inconceivable.

Besides, to get the explained examples, several takes of the piece were made and sent to the composer to check if it was close to the sounding result he was aiming for. This means I had to incorporate his vision as composer to my interpretation of the piece as performer, which was also interesting. Nevertheless, although the examples exposed may be close to the composer’s view, this does not mean that other performances are equally accepted and considered as correct, as every performance is unique and can continue contributing to the music society.
Nevertheless, the process got a bit more complicated when coming to the final piece. In this one, electronic was added, so then it was not only me playing solo clarinet, but also the electronic had to be recorded. We followed then the same process in which, after practising the piece for a couple of months, I sent the composer some recordings asking for feedback.

In this case, the feedback did not include only aspects related to the clarinet, but also related to the recording itself as we needed to keep good quality for the electronics used in the final concert. In fact, he really helped me to establish a good setting to keep the sound as pure as possible and avoid any noises disturbing the recording that could appear later in the concert. After that, I recorded the small part of the electronic, which only included some tiny elements of the piece. However, there was also a longer part of the electronic which included the whole piece, so this one took longer period of time, as that means that I had to perform the whole piece in one take.

Being in contact with the composer has been really useful. It can be helpful not only for the general conception of the piece, but also for specific aspects in the clarinet part. For instance, it was helpful for multithiphonics, in which maybe the performer is focusing in a specific note because it is easier for the instrument technique, but does not get a result as balanced as the one desired by the composer. Besides, it is always easier to get objective feedback from someone that is listening from the outside, as it is easier to detect any mistake.

Finally, we started to organise the final concert, which also needed some time. Even though all the electronic was already recorded by then, we still needed to check that the hardware was working as we wanted to and that everything would work in the place and time we wanted to, as explained in the next section.

5.4 Final concert

In the final concert, the piece Shadows will be performed. This means that the pre-recorded sounds that I had recorded for this project, together with other effects and synthetic sounds will be used. According to the composer (Shadows’ Interview, 2022), there are two possible versions of this piece.
The main version of the piece is the one organised to be performed in Lilla Salen at KMH, as that is the room which inspired the composer from the beginning of the project and lead us to collaborate together. In this sense, the audience will listen to the live electronic through the 29 speakers that are located above them and that are organised like this:

![Sound Dome Speaker Map](image)

As we can see in the image, speakers are organised in three concentric circles with a speaker in their centre. In that sense, the sound will be distributed in different groups of speakers, creating different effects, such as making the sound draw circles in the room. And the purpose of that will be to make the audience have a broader perception of the piece by listening to the sound not only coming from one direction, but from many different places in the room.

According to the composer, the software used for programming the electronics is in this case Max (Shadow’s Interview, 2022). That is software in which he programmes everything. Pre-recorded sound, natural live sound and synthetic sound can be processed there and be used as launcher to get the sound back to the speakers of the room in a live performance.
As it was explained in the interview (Shadows’ Interview, 2022), even though in this case Max is used, people could also use any other software for that purpose by copying the structure of the electronic part written in the score. Nevertheless, that would mean that they would need to programme everything from the beginning, but this is also a possibility that guarantees the sustainability of the piece in a long term and also respects other artists’ preferences regarding software and programming.

Besides, there is a second possible version of the piece. That one would be thought to be performed in stereo, only using two speakers, but applying exactly the same resources for the recordings. That means that the only difference will be that we launch the resulting sounds to only two speakers instead of 29. Apart from that, all the processes described are kept.

According to the composer (Shadows’ Interview, 2022), every electronic-music composer usually makes these two versions of the piece, that is, the original one and then a simplified one. In fact, this is what makes the piece more accessible to everyone who wants to perform it and makes easier to explore the electronics for other performers.
6 CONCLUSIONS

Now it is time to go back to the main question of the project and reflect on the main goals that were established for the project in the beginning.

One of the aspects that I wanted to explore with the project was the collaboration with a composer and the use of electronics in the clarinet. Both goals have been met, firstly through the composition of two pieces together with Manuel Emilio Marí, and secondly through the addition of live electronics in the final piece called Shadows. Besides, all the collaboration process has been carried out successfully, being communication essential for both the composer and me as performer.

On the other hand, one aspect that was considered from the beginning was the influence of perception in the audience. This has been addressed in the final piece as the live electronic is thought to be launched through the 29 speakers above the audience in Lilla Salen, so the listener will be surrounded by sound, not only coming from one place in the room, but from many different places, which affects the perception and the understanding of the piece, creating an unique atmosphere in the final concert.

Of course, there are some aspects that can be address in a deeper way in future projects, such as the deeper understanding of the electronics on my side when talking about the software applied and how to programme it. In this case it has been the composer the person in charge of doing it as my knowledge for that was not enough, so we decided that I should focus on the performance aspect while he composed and programmed the electronic part. However, I would like to say that I have also learnt about how it works and that it would be really interesting to continue with it in the following years.

And last, but not least, I would like to thank the composer for wanting to carry out this project with me and trusting me through the whole collaboration. He has been fundamental in the process and he has been open to my suggestion through the composition of the pieces. I hope this project helps the music society by presenting contemporary music and live electronics as something that can be accessible to everyone, interesting, and also inspire other musicians to carry out their own projects to continue developing this music world.
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8 APPENDIX

8.1. SOUNDING PART

The sounding part of this project can be found at KMH’s digital library and it includes:

- Recording of Cycles’.
- Interviews of Cycles and Shadows. These have been made in English to allow the understanding of a broader reader.
- Electronic part of Shadows.
- Concert version of Shadows.

8.2. SHEETS MUSIC

Below, the scores of both pieces are included. First, the preliminary piece called “Cycles” can be found, and second, the final piece called “Shadows” can be found. The page numbers on the sheet music correspond to the original one written by the composer.

Besides, the electronic files for the piece “Shadows” are included, as they are considered part of the score needed to any other musician to be able to perform it. As they are software files, they can be found in the sounding part of the project.
Cycles

For clarinet solo

Manuel Emilio Marí Altozano
Performance instructions

**Tongue height:** One-line staff sets three different tongue’s height levels according to its closeness to player’s palate.

- Above line: near to the palate.
- Over line: intermediate position.
- Below line: over mouth-floor.

Dotted line helps player to synchronise tongue’s movement with positions and clarinet air sounds. Notes with specific durations must respect general tempo. Tongue heights with non-stem notes are synchronised by dotted lines.

Non-stem notes draw a *presto* movement. Player must play quick, but no hurry.

Air sounds.

Exhale: sound of blowing out air.

Inhale: sound of sucking in air.

Message in boxes changes natural fingerings (diamond-headed notes). Ordinary-headed notes show final sound.

- Open mouth (air sounds or slaps).
- Close mouth (air sounds or slaps).
- Circular breathing.
/(e)/

Voice line shows internal form of mouth in open mouth air sound. Player must open the lip corners to blow at the same time out and inside the mouthpiece. Changes in air sounds by positions, vowels and tongue must be clear.

\[ \text{Trill by holes and keys written in boxes. Trill for key number 7 in first staff on page 3 must be played by middle finger.} \]

\[ \text{Tremolo with box is performed by playing first-note position and trilling the given key.} \]

\[ \text{Teeth-on-reed.} \]

Spectral multiphonics on page 3 line 5 is played by changing lips and air pressures. Notes in parenthesis do not have to be audible; they are powered up harmonics to change original timbre of note.

\[ \text{Key slaps.} \]

\[ \text{Get harmonics by changing lips and air pressure.} \]

**Notes:**
- Trills are always semitone trills unless the second note is written in parenthesis.
- Air sounds are always *legato* except when *staccato* is written.
Keys and holes diagram
Cycles

\[ \text{\textcopyright Manuel Emilio Mari Altozano} \]

\[ j = \text{ca. 40} \]

Tongue height

\[
\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
\end{align*}
\]

Clarinet in B♭

\[
\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
\end{align*}
\]

\[
\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
\end{align*}
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\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
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\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
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\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
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\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
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\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
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\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
\end{align*}
\]

\[
\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
\end{align*}
\]

\[
\begin{align*}
\text{T. h.} & \quad \text{Cl.} \\
\end{align*}
\]
Adagio molto tranquilo

Andante súbito ma rubato \( j = \text{ca. 70} \)

widely slow lips vibr.

extremely \( \text{fff} \)
Calmly and rubato $\approx \text{ca. } 45$

T. h.

Cl.

T. h.

Cl.

T. h.

Cl.

Calmly and rubato $\approx \text{ca. } 45$
Shadows

For clarinet and live electronics

Manuel Emilio Marí Altozano
**Performance instructions**

**Tongue height:** One-line staff sets three different tongue’s height levels according to its closeness to player’s palate.

- **Above line:** near to the palate.
- **Over line:** intermediate position.
- **Below line:** over mouth-floor.

Dotted line helps player to synchronise tongue’s movement with positions and clarinet air sounds. Notes with specific durations must respect general tempo. Tongue heights with non-stem notes are synchronised by dotted lines.

Non-stem notes draw a *presto* movement. Player must play quick, but no hurry.

Air sounds.

Exhale: sound of blowing out air.

Inhale: sound of sucking in air.

Breath without the clarinet, loudly by using given consonant and vowel as mouth shape.

Message in boxes changes natural fingerings (diamond-headed notes). Ordinary-headed notes show final sound.

Open mouth (air sounds or slaps).
Close mouth (air sounds or slaps).

Circular breathing.

/(/e)/

Voice line shows internal form of mouth in open mouth air sound. Player must open the lip corners to blow at the same time out and inside the mouthpiece. Changes in air sounds by positions, vowels and tongue must be clear.

Trill by holes and keys written in boxes. Trill for key number 7bis in first staff on page 3 must be played by middle finger.

Tremolo with box is performed by playing first-note position and trilling the given key.

Spectral multiphonics on page 7 line are played by changing lips and air pressures. Notes in parenthesis do not have to be audible; they are powered up harmonics to change original timbre of note.

Get harmonics by changing lips and air pressure from diamond-note position.
Other considerations

- Trills are always semitone trills unless the second note is written in parenthesis.
- Air sounds are always legato except when staccato is written.

Live electronics

- For electronics, a microphone and a computer keyboard are needed.
- The microphone must record the clarinet performance live.
- An assistant must press the keys written in boxes in ‘Live electronics’ line.
- For further information about electronics see notes in patch.
Keys and holes diagram
Shadows

a Maria Victoria Fernández Caballero

Manuel Emilio Mari Altozano

\[ \dot{=} \text{ca. 50 ma più rubato} \]

<table>
<thead>
<tr>
<th>Tongue height</th>
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<tr>
<td>always breath and blow deeply</td>
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<tr>
<th>Clarinet in Si</th>
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<tbody>
<tr>
<td>( \text{pp} \rightarrow \text{mp} \rightarrow \text{p} \rightarrow \text{pp} )</td>
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<tr>
<th>Live electronics (Keyboard controlled)</th>
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<td>1</td>
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<td>2</td>
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<tr>
<th>Tong. h.</th>
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<tr>
<td>Wait until echoes end</td>
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<th>Cl.</th>
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<tr>
<td>( \text{mf} \rightarrow \text{p} \rightarrow \text{p} \rightarrow \text{p} \rightarrow \text{p} )</td>
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<th>L. elec.</th>
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<tr>
<th>A</th>
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<tbody>
<tr>
<td>Poco più mosso ( \dot{=} \text{ca. 60 ma sempre rubato} )</td>
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<th>Tong. h.</th>
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Until cell's shadows end
Poco meno mosso ma sempre un poco rubato \( \underline{\text{\textasciitilde}} \) = ca. 55
Cl.  L. elec.

\[ p \rightarrow \text{mp} \rightarrow \text{pp} \rightarrow p \quad \text{3} \quad \text{3} \quad \text{3} \quad \text{mp} \quad \text{ff subito} \]

Cl.  L. elec.

\[ p \text{ dolce} \quad \text{mp} \quad p \]

Cl.  L. elec.

\[ p \quad \text{poco a poco cresc.} \]

Cl.  L. elec.

\[ f \]

\[ \text{poco a poco cresc.} \]
Molto aggressivo \( \frac{\text{Tempo primo ma più stridentissimo}}{\text{sempre \( \text{fff} \) stridentissimo}} \) = ca. 120-136

\( \frac{\text{sempre \( \text{fff} \) stridentissimo}}{\text{sempre \( \text{fff} \) stridentissimo}} \)

\( \frac{\text{sempre \( \text{fff} \) stridentissimo}}{\text{sempre \( \text{fff} \) stridentissimo}} \)
Pochissimo meno mosso $j = 55$

fff...stridentissimo

L. elec.

slow

L. elec.

ppp...p

L. elec.

--p--p--mp--pp--p--pp

L. elec.

--p--p--mp--pp--p--pp

L. elec.

--p--p--mp--pp--p--pp

L. elec.

--p--p--mp--pp--p--pp

L. elec.
Breath deeply and calmly

20"