



The Soundomat

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Abstract. This paper will examine the interactive sound sculpture The Soundomat, constructed with the aim of making an engaging experience while challenging our perception of music.

The concept of music will be discussed through people's reaction, to an installation which is based on *musique concrète*. Furthermore, it will analyze and investigate where the project originated from, through methods of idea development, designing, coding and conceptualization. It will illustrate and describe what inspired the work, and the reasoning behind the choices that were made. The installation is playful in its design, and It has the intention to stir imagination, curiosity and provoke playfulness, while looking intriguing with its vibrant color scheme and 'turntable' element. Additionally, we will discuss and analyze the interaction between The Soundomat and the participants, through interviews, observations and the feedback received. It observes that people had two different ways of interaction. Either they picked the soundblocks based on the materials and the sounds they expected from them, or they worked in a more systematic manor and only added one soundblock at a time. There was no clear indicator, why some used one method over the other. Even though some of the participants were not aware of the concept *musique concrète*, they described the soundscape from The Soundomat in a way that corresponds with the definition of *musique concrète*. Lastly it will be analyzed, whether the project fulfills its intent, as well as its future work and improvements.

Keywords: Sound · Machine · *Musique concrète* · Design · Interaction · Creativity · Curiosity

1 Introduction

“Sound installations, for better or for worse, get us listening to the world” (Rogill 1989). Sound installations often use sounds from our everyday life, these sounds are usually not noticed, either they are ignored, or our brain filters it out as noise. Many of the sounds seem recognizable but are easily discarded as the noise of the world. What if we listened? This question has led us to the problem formulation:

“How does people react and interact, either alone or together, with an installation that encourages and inspires the users, to experiment with different materials to create a soundscape from their own creativity and curiosity, and thereby challenges the users perception of music?”

We wanted to facilitate this investigation and exploration in an intriguing way that stirred the user's imagination, curiosity and provoked playfulness. To this purpose, we developed The Soundomat.

The Soundomat is an engaging sound installation that aims to explore the relation between sound, noise and music, based on the theory and concept of *musique concrète* introduced by Pierre Schaeffer in 1948. As he describes in an interview: “Musique concrète is music made of raw sounds: thunderstorms, steam-engines, waterfalls, steel foundries... The sounds are not produced by traditional acoustic musical instruments. They are captured on tape (originally, before tape, on disk) and manipulated to form sound-structures” (Hodgkinson 1987).

The Soundomat aims to experiment and investigate raw sounds, it allows the participants to investigate the properties, textures and sounds through ‘soundblocks’. Soundblocks consists of raw materials, which are placed on Velcro strips around the artefact, they can then be placed on the turntable. Contact microphones pick up and enhance the sound of the different materials. Users are encouraged to create their own composition and soundscape, and through this process listen to the world anew.

During the exhibition at Aalborg University we gathered data, through interviews and observations, about the user's experience, their creative approach, and their perception of sound and Music. This will be analysed and discussed.



2 Method and Design

In this section we will account for the design process and discuss our choices in term of the design we chose to make an artefact as clear to understand and as user-friendly as possible. The process started with the idea of having a pickup bar with contact microphones, which would allow the participants to experiment with sound and music.

To expand on this idea and to find a systematic order to the ideas and the process we chose to work with mind mapping and concept mapping. Through both mapping-concepts it helped to expand our creative design thinking further and get even more ideas written down for discussion. Nick Pride puts it this way: “Drawing out everything that’s in your mind gets rid of the ideas that you’ve used before that clutter your brain.

Get these down, know that they're out of your mind, then you can turn the page and get on to the new." (Pride, as cited in Ingeldew 2016). The team took the advice into consideration and worked with a no-fear-process towards each other— it was crucial for the idea – and design process that all team members never left an idea unsaid and that everybody came over their fear of embarrassment: "Get over this fear of humiliation and always voice your wildest ideas" (Ingeldew 2016) - and so, we did.

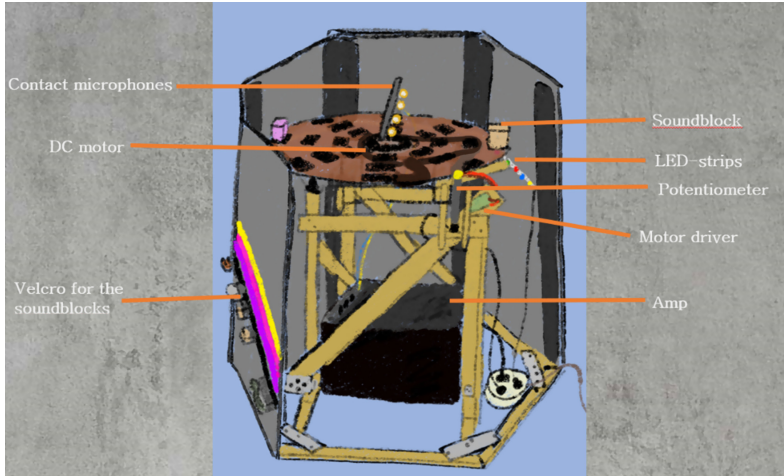
We used an iterative design process, developing ideas before starting over with new concepts. While this design method was not planned, it did allow us to improve the important elements of the design through the multiple iterations. One aspect of the design which changed over time and in the end was dropped was the space around the pickup bar. We started of wanting to create a room and closing off the space by having it be a dome with the pickup bar built into it. Trough iterations this chanced to a half dome and a roof overhanging the turntable to still create a room and encompass the participant. In the end the roof was removed from the design altogether. This way the artifact could include more people both working together but also making it possible for them to observe and share the experience. By making the artifact including for the participants around it we discovered when the participants worked individually everybody else became spectators. The artifact became a stage for everybody to become an artist.

A key aspect of the artifact was to have it be intuitive and be user-friendly. To achieve this, we wanted to guide the user's eyes by using bright colors, to indicate where and how to interact with the artefact. The use of velcro helped make it clear to participants that the soundblock were movable and where they should be moved to.

To draw the participant eyes to the rotating plate it was made in a different material than the rest of the artifact. We placed LED lights beneath the plate which would change colors slowly, this combined with the rotating plate made it the only moving part of the artifact. We also made the walls of the exterior structure narrow towards the top to again help guide the user's eyes up.

It was important for the artefact to be as inviting and eye-catching as possible. The bright colors, that were used to make the artefact intuitive, were not only useful for usability but is was also an excellent choice to make the artefact very eye-catching and intriguing.

Through an iterative design process and especially design thinking as a method we were able to create an artifact which challenged the participants perception sounds and music by facilitating an engaging and user-friendly experience. At the exhibition the team discovered that the participants of all ages and different musical backgrounds found it intuitive and entertaining.



3 Analysis of Interaction

To collect data from the participants of The Soundomat we used the general interview guide approach; This gave us the possibility to interact with the participants in a relaxed though formal manner. As part of our data collection we talked with dozens of people at an exhibition and further interviewed 12 people. Additionally, we coupled this with observations of the participants interaction with the artifact.

We observed two main approaches to creating a soundscape. The first approach depended on the participants worked in a systematic fashion and here by placing the soundblocks on the artifact one at the time to gain knowledge about the individual sound of every soundblock or rotating it to find the most satisfying sound. One participant using this method stated as followed: “I am curious about which different sounds the materials could make but when you put all the soundblocks together, you have no idea, how it will sound”

The team discovered when the participants chose a soundblock, they got an expectation of which sound they also wanted to add to the soundscape. Somehow the participants who worked in a systematic manor also planned how the soundscape should sound through expectations to the soundblocks. When they chose a soundblock that lived up to their expectations, they then sought to discover a new sound which then led the way to a new plan and new expectations to the soundscape.

The other approach relied on people’s expectations of the materials on the soundblocks. We observed multiple participants touching or tapping the soundblocks before placing them. Before testing whether this method would match with the sound produced. They would place several soundblocks before hearing the sound it makes, with a clear expectation of how it would sound. This despite none of them having experience with contact microphones. One user who mistook a soundblock with plastic for glass described their expectation as follows:

“Glass appealed to me, because I assumed it would have a high-pitched sound. I also listed to the leather which reminded me of a bass. So, I tried to choose sounds, based on where they might fit in the timbre.”

The participants who used this method would often be surprised by the finished soundscape as it would not match their expectations. This forced them to experiment further, often still using their expectation to the material but now in tandem with their new knowledge of how the materials sounds through contact microphones. However, they would still change several soundblocks at a time making it difficult to distinguish the different sounds, this did not seem to hinder the participants from creating a soundscape they were satisfied with.

We see that participants using either method worked using their expectations but in very different ways. Perhaps this shows how people cannot help but use expectations as a tool for learning even when faced with an artifact which works in such a way, they have no prior experience with. There was no clear distinction between participants with high or low level of musical experience and which method they used when interacting with The Soundomat. It would be interesting to see if participants with experience making musique concrète would interact differently, but we were unable to arrange this.

“When ask whether or not they would classify the soundscapes as music the participants never gave a clear answer. They would start pondering the definition of music, arguing with themselves back and forth before concluding that it was music. Some gave the reasoning that because there was a rhythm it must be music. While another argued that the fact it was intentionally created made it music. A lot of participant stated while they did not necessarily enjoy it, they would classify it as music. It was clear that experimenting with The Soundomat made them question and reevaluate what they would normally define as music.”

Musique concrète has a clear process of creation. It helps define which music that is concrete and which music that is defined as regular music (According to Pierre Schaeffer). The participants that worked with The Soundomat worked in a way that corresponds with the process of creation dictated by Pierre Schaeffer.

The participants who contributed to the interview were asked if they had heard of the concept ‘musique concrète’, of which they all answered ‘no’. Further in the conversation the participants mentioned musical genres as ‘stomp’ and ‘beatboxing’ – these modern musical genres are good examples of what musique concrète is, even though the participants who mentioned it knew of musique concrète. Additionally, the participants compared The Soundomat to ‘stomp’ and ‘beatboxing’. The interesting part in this assertion is that the participants did not know of musique concrète, but they managed to mention genres that is known as subgenres to musique concrète right after they interacted with The Soundomat. In that case we can derive a comparison of the participants between musique concrète and the The Soundomat, despite not knowing the concept.

At the exhibition we were able to observe participants interaction both working in groups and alone. Some felt frustrated working in groups, they felt it kept them from freely experimenting. While others felt working together made the experience better, these people would often stay longer to observe other people’s soundscapes even after the people they had collaborated with had left. It was not possible based on our observations and interviews to come up with any hypothesis to why people felt differently.



4 Conclusion

We conclude that we succeeded in creating an installation that made its users think about their understanding of music by allowing them to make their own soundscape by experimenting with different materials and their creativity. They did this either by reflecting on their expectations to the sounds of different materials or by experimenting with limited expectations and working only by pure curiosity. Many of the participants were surprised by the sounds coming from the soundblocks, but this only contributed with more curiosity and experimentation.

Some of the participants chose to work by systematically placing a single or few soundblocks at the time and then adjusting each of them to get the exact rhythm they wanted. Others chose the soundblocks more randomly without putting a lot of thought into the process.

Most of the participants would describe their soundscapes as music, though often only after some contemplation and afterthoughts. They wondered about the definition of music and were often thinking about different definitions before they would conclude that they would describe their soundscapes as music.

The Soundomat both challenges and facilitates the creation of *musique concrète*. The installation has inspired and encouraged the participants to use creativity to discover sonic properties of different materials and experiment with these to challenge and question their perception of what they would define as music.

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