Audience Experience in Sound Performance

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ABSTRACT

This paper presents observations from investigating audience experience of a practice-based research in live sound performance with electronics. In seeking to understand the communication flow and the engagement between performer and audience in this particular performance context, we designed an experiment that involved the following steps: (a) performing *WOSAWIP* at a new media festival, (b) conducting a qualitative research study with audience members and (c) analyzing the data for new insights. Although this study is only at an initial stage, we already found that the post-performance interviews with the audience members is a valuable method to help identifying instrument design and performance considerations.

Keywords

Audience Experience Study; Live Performance; Evaluation, Research Methods

1. INTRODUCTION

Over the last decade, the advent of media technology used in performance practice has unfolded new opportunities to mediate meaning and feelings. The decision on how to present an interactive sound work in a live performance, however, often becomes challenging because interaction technology allows arbitrarily mapping of bodily movements as controls to produce sound. This is especially a concern if a performing artist attempts to engage and build a connection with her audience. Our hypothesis is that an audience experience study allows to gain significant insights regarding instrument and performance design factors, in which they inform or guide the next step to be taken in our practice towards a more engaging performance.

In this light, this paper presents a practice-based research project [5] that applied an approach to investigate the authors' existing sound improvisation work, *WOSAWIP* (Figure 1). We conducted a qualitative study based on grounded theory methods. Our main interest was to learn about the audience's perception of the performance, in particular to (a) the used electronic and electro-acoustic instruments, (b) the relationship between performers and instruments and (c) the overall structure of the performance.

2. BACKGROUND

Finding a suitable study method to guide further steps in improving the design of new digital musical instruments is not an easy task. An earlier way to approach this is by conducting an evaluation of new digital musical instruments that investigates the interaction of the instrument. Wanderley and

Orio draw techniques from the field of human-computer interaction (HCI) and propose to use a set of musical tasks to evaluate the effectiveness of musical input devices [14]. Later, Stowell presents the application of both Discourse Analysis and Turing Test for evaluating interactive music systems with a (user) performer-centered perspective [13]. Johnston also presents an evaluation approach that takes the performers' view into account by conducting a semi-structured interview followed by applying grounded theory for analysis [10].

Audience engagement, however, seems to be underrepresented in concrete studies in a live electronic music performance situation with a formal evaluation method, which is why we turned our attention to the evaluation of performances, as we seek to find out more about audience's perception in this context.

Figure 1. WOSAWIP performance at Cartes Flux 2012.

2.1 Audience's Perspectives

O'Modhrain proposes a Digital Musical Instrument evaluation framework that points out there are multiple stakeholders, including instrument designer, performer/composer and audience, are involved in the design and evaluation process, thus various perspectives should be taken into account [12]. An early proposal that includes both the performers' and the audience's perspectives in evaluating interactive musical systems is presented by Hsu and Sosnick [8]. Fyans also presents a qualitative experiment and conducted a structured interview investigating spectators' understanding of two video performances of a Theremin and a novel electronic instrument. [6]. More recently, Barbosa presents a DMI evaluation method that takes the audience's view into consideration, and this proposed method is applied with a practical case, in which a questionnaire approach was adopted after having the participants view the video of a performance [1].

It is also worth noting that aside from the electronic music performance context, the evaluation studies focusing on audience experience are also applied in the field of installation art. For example, Costello employed the video-cued recall method to study interactive art experience in real-world settings [3]. Also, Bilda conducted an experience evaluation of an interactive artwork with two techniques: video observation of audience behavior, and contextual inquiry with the audience

[2]. In addition to these methods, Jaimovich takes a bio-inspired direction in understanding audience's reaction to music, in which the experiment involves the use of sensors to measure physiological data from people listening to music [9]. This tendency further emphasizes that the audience's perspective and feedbacks are an important aspect when considering an evaluation method.

3. OUR STUDY

Based on the considerations described in the previous section, we developed an audience study that is closely integrated into existing artistic practice *WOSAWIP*. It consists of these parts: (1) adaptation of the instrument setup, (2) performance at a public event, (3) guided interviews of audience members and (4) analysis of the gathered data by grounded theory.

3.1 Instruments

WOSAWIP is a structured improvisation performed by two players. It features two different instrument sets.

The setup played by Performer 1 consists of Rob Hordijk's *Benjolin* (an analogue synthesizer), a volume pedal and a custom software spatialization effect based on Callum Goddard's *mono2eN*[1] (Figure 2). The sounds generated by the *Benjolin* are of great variety, ranging from grain-like blips to steady sound layers spread over 8 octaves. Its output volume is controlled by the expression pedal. In combination with the spatial effect that spreads the signal over the four channels and incorporates a stochastic magnitude freeze effect; the setup forms a true spatial instrument that can be play intuitively.

The setup played by Performer 2 consists of a series of (percussive objects), mallets, a custom software effect for spatialisation and delay, and a wearable device to control that effect (Figure 3). The percussive objects can be grouped into two categories: wood-based, and metal/glass objects. These two groups of objects were placed on two tables, located on the sides of Performer 1's setup (Figure 4). This setup was chosen intentionally to spatially expose the sonic characteristics in relation to the performer's location on the stage. Performer 2 wore the wristwatch-like device developed in the *WanderOnStage* project [11]. This wireless device gives control over the sonic and spatial parameters of the performance system with arm movements. Its input is taken from microphones, which capture the sounds by playing the percussive objects. Depending on the arm position, the captured sounds are layered or fed through various delay and pitch-shift effects; and finally dynamically spread in the concert hall.
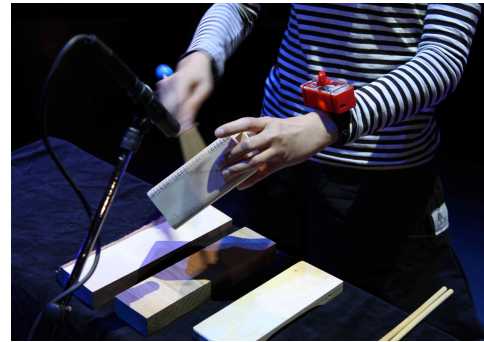

Figure 2. Performer 1's instrument.
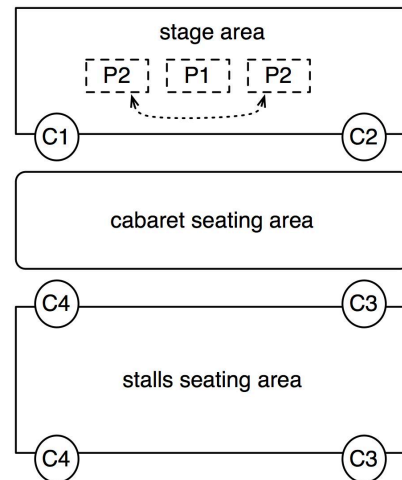

Figure 3. Performer 2's instrument.

Figure 4. The performance space layout. P1: Performer 1's instrument location. P2: Performer 2's instrument location. C1, C2, C3, C4: the audio channels of the speakers and their locations.

3.2 Performance

Prior to the *WOSAWIP* performance, the first author played the second instrument set in a solo performance [2] as *WanderOnStage*. For the performance that is part of this study, we altered the setting in order to explore performance qualities. We therefore chose contrasting styles between the two performers in sonic and instrumental qualities.

The duo performance was invited to play at the opening event of *Cartes Flux 2012*[3], an international annual festival of New Media Art, Espoo, Finland. The two performers and their instruments were located on the raised front stage. The audience seating was divided into two areas: cabaret seating in the front and stalls seating in the rear. The loudspeaker setup consisted of two ceiling mount speakers facing the audience area (audio channel 1 and 2), two speakers placed in between the two seating areas facing the cabaret seating (audio channel 3 and 4) and two support speakers (audio channel 3 and 4) at the back of the stalls seating. Two stage monitor speakers playing a mono mix-down were set up on the stage for the performers. Figure 4 illustrates the layout of the performance space and the setup of the speakers.

Although meant to play an improvisation, the artists agreed beforehand to have three fixed points. Other than that, there were no strict rules. The start of the piece began with Performer 1 playing a sustained solo, after around one minute, it slowly breaks apart, and Performer 2 joins. After that, it was agreed to reach a point of silence, from which something new arises.

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[1] http://callumgoddard.com/mono2eN

[2] http://tai-studio.org/index.php/projects/4for8/4for82012/
[3] http://cartes-art.fi/flux/en/cartes-flux-2012/

Finally, we agreed on ending the performance after approximately 20 minutes.

3.3 Audience Experience Studies

After the *WOSAWIP* performance and during the intermission, we asked audience members to participate in our study. If agreed, contact information was acquired and an interview was scheduled within the next few days. This way, we recruited 8 participants (2 female, 6 male, aged 23-43). All participants had backgrounds in the field of art and design practice, and 6 reported to have experiences in working with interactive audio. 4 participants had already seen the *WanderOnStage* solo performance. The study participants were interviewed individually. Prior to the actual interview, they were informed about the general procedure. Each session lasted for approximately 10 minutes.

In the semi-structured interviews, the participants were posed with open and exploratory questions relating to their experience. The first question asked was *"Could you please talk about your experience as an audience member at the WOSAWIP performance?"*. Each interview was videotaped; the collected verbal descriptions of the participants' feelings, judgments, observations, and expectations were subsequently transcribed into keywords associated with a time code.

3.4 Data Analysis and Results

The collected data was analysed according to techniques of grounded theory [4, 7]. After transcription, we made ourselves familiar with the texts and performed an open coding phase. Once the data was coded and sorted, we began the memoing process and looked at the broader level of similar matters and drew connections between codes. Finally, we sorted the memos into potential categories which were reviewed and named.

The data, consisting of approximately 80 minutes of interviews was transcribed and coded. We differenciated the data as either judgement, description, questions in mind and expectation. In the coding process, a list of features emerged such as spatialization, interaction, instrument, music structure, stage. By further condensing, the findings were grouped into the following four categories.

3.4.1 Performance Space

It became evident that the performance space in terms of its visual and sonic environments was an important element for the audience experience: Most participants described the feel of the theatre space, and the stage layout in relation to the seating arrangement and how the instruments and performers were positioned on stage.

"In terms of the stage layout and lighting, I thought it was very well presented. The venue has complimented the performance very nicely." (Participant 4)

Some descriptions of the performance space also include the sonic space. Five participants (Participant 1, 2, 3, 4, 6) described their awareness of the multi-channel spatialization. For example:

"Because I noticed that the audio is spatialised, so I was pretty much in the middle. I was thinking, ok, that's probably a good place to sit. Then I was listening to it, I could hear the spatialisation of the sound going around." (Participant 2)

Among the five participants (Participant 1, 2, 4, 6, 8), one participant commented that the produced sound characteristics created nice effects when spatialized, whereas two participants described the sounds as "pointy" and not immersive enough and wondered on improving the spatialization.

3.4.2 Instrument

All participants talked about how they experienced the instruments in relation to the performers' actions. Four

participants mentioned they were curious about Performer 1's instrument, in particular to its appearance and what the Performer 1 did to control it:

"Because he had a small instrument, and I was curious to see what instrument and what kind of small thing [it] was. I couldn't see." (Participant 5)

Five participants briefly described their understanding of Performer 2's instrument. Their descriptions showed that they correctly interpreted her arm movements to control a delayed effect from the live recordings:

"It has a box, and it's on the hand, and it has some sensor inside because when you do this [raises arm] it takes the recording and makes a loop out of it and it faded out after certain time." (Participant 8)

3.4.3 Music and Performance Structure

Four participants (Participant 1, 3, 5, 7) found that the structure of the music tended to be repetitive; Participant 1 felt it was similar throughout the piece.

"I felt that the way you play each acoustic instrument was quite consistent or similar through the piece it seemed to me with the repeated and quick hit. So there's a consistency of general tempo to that." (Participant 1)

Also, Participant 2 reported that the overall structure seemed to him to resemble circles, He was hoping for a change to something totally different. Similarly, Participant 4 commented that there was not a huge amount of variations and the build-ups were similar. Participant 6 suggested the performance could start building into different stages.

3.4.4 Duo Performance

As mentioned above, the performing actions of the two performers were intended to be contrasting from each other. Following this, four participants pointed out that the duo performance added contrast and dynamics.

"So he is like controlling something that's active on its own to certain degree and tries to steer it and make choices, and you on the other hand were clearly doing something to add. So that's the contrast of instrument styles." (Participant 1)

However, two participants, who had seen the performance as a solo piece, pointed out that, although they could recognize the relationship of Performer 2's action-to-sound, it was not as clear as it was when presented as a solo performance.

"Maybe I already know what you did, so I was confused that what your partner did. I cannot really distinguish what he made and what you made." (Participant 3)

In addition to that, Participant 8 repetitively mentioned that he would prefer a separate performance as the produced sounds and the instrumental approaches of the two performers were very different, and also the connections between the two was not perceived:

"Actually it was a bit like conceptual mismatch in my mind… it made me try to look for similarities or try to see as a compositional duet, two people doing the same performance. I couldn't see much."

4. DISCUSSION

The performance space played an important role regarding audience experience as most of the participants expressed their awareness or judgment about the physical and sonic spaces.

The mentioning of a lack of spatial immersion by some participants might be caused by the use a 4-channel sound system: Originally the performance system was designed for an 8-channel sound system. Due to technical constraints, however, it had to be reduced to 4 channels.

On matters of the perception of the instruments, the relationship of the sound producing and the control gesture of Performer 2's instrument were intended for the audience to be

perceived. Most participants successfully understood one type of this cause-and-effect relationship: the use of a particular arm gesture to control the playback of live-recorded sounds. However, no participant mentioned the other control gesture: the change of Performer 2's orientation in the room that selected sound effects and with it, directly influences the sonic quality of the distributed sounds. We think that the design of this action-to-sound relationship was too subtle to be observed clearly. This implies to further look into the perception of body movements in performance situations. Even choreographed movements could be considered.

The rather delicately visible interaction of Performer 1 with his instrument setup made some participants curious about the instrument. Depending on the artistic intention, this might be seen as an implicit critique or a deliberate effect. Whether or not this is an artistic intention, its effect on the audience should be taken into account prior to the performance.

For this particular performance, we chose an almost unstructured improvisation. As about half of the participants reported the music and performance to be somehow repetitive, and hoped to see a development over time, we feel encouraged to re-think the improvisational aspect, adding more predefined structure to the piece. However, both musical and structural performance variations are constraint by the affordance of the instruments. This can be taken into account even at an early stage during the instrument design and prototyping process.

4.1 Reflection

We acknowledge that an audience study would be improved by including a more thorough audience profiling, combined with a set of specific questions on top of the open questions to further validate our findings. Also, we found it hard to keep the participants talking but are confident that our interview style will develop over time.

On the content level, several questions arose that have to be tackled in the future. Particularly the connection between the performers and the transparency of the performer's interaction with the instrument have to be made more evident. However, the gathered insights already give valuable hints on how to approach these aspects.

In summary, we think that the results of the study are constructive in the sense that our goal to work with contrasting styles for the performer regarding instrument choice, sound, and performance succeeded to communicate. As a result of the study, we formulated the following four guidelines for interactive sound performances, which may help in the decision process already in the design of new musical instruments, interactive systems and the performance. They will be part of the development of our future artistic practice.

1. Make a performance space that is visually and sonically comprehensive.
2. Consider showing the instruments and your interaction with it to the audience.
3. Consider having clearly evolving musical and performance structures.
4. Involving multiple performers in an ensemble setting adds contrast and dynamic to the performance, however, closer connections, such as the performers' roles and the music-making process, have to be established.

5. CONCLUSION

This paper presented the outcome of the practice-based research process that included conducting post-performance interviews as a means to gain insights on the audience perspective to sound performances.

Many factors influence the engagement of the audience. No matter whether it is actively or passively involved, there always exists some form of communication and interaction between performer and audience. For this study, the collected data is comparably small. However, based on the diversity and number of insights gained, we consider this study method to be valuable. The formulated guidelines are able to highlight design factors that are important for an engaging performance from an audience perspective.

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