Qualitative Usability Study Design and Evaluation

General Information

Purpose of Study:

The purpose of this study is to explore the usability of *ScreamScape* and its impact on the user's overall experience. It aims to investigate both emotional and cognitive responses to the instrument, as well as assess the ease of use. Additionally, the study seeks to identify areas for improvement based on the feedback provided by participants.

What do I want to know about?

- Opinions on design principles and processes
- Sensor Rationale
    - Look and Feel
    - Function
    - Goal
- Vocal Rationale
- Parameter Rationale

Usability is defined to include the following metrics.
Ease of Use includes:
1. **Effectiveness**: The ability of the system to allow a vocalist to perform desired musical tasks, such as sound manipulation or performance, with minimal errors.
2. **Efficiency**: How quickly and easily the vocalist can learn to operate the system and carry out tasks without unnecessary complexity or confusion.
3. **Learnability**: How easy it is for the vocalist to understand and begin using the system.

4. **Satisfaction**: The degree to which the vocalist finds the system engaging, enjoyable, and creatively fulfilling, which includes emotional responses to the interaction.
5. **Feedback**: How well the system responds to user input and whether the feedback is intuitive and helps guide the user during performance.

Scheduling the Usability Study

Day 1

-Introduction to the system and basic functionality verification-
Day 1 will be dedicated to introducing *ScreamScape*, its core concepts, and the study

schedule to the vocalist. I will familiarize the vocalist with the system, covering its basic functions. The vocalist can choose whether they want a full walkthrough of the system or prefer to explore it on their own first. After this brief introduction, they will be asked to complete a series of musical tasks, followed by a short survey on their experience. I will also explain the plan for Day 2 before wrapping up. The entire session will be video-recorded for later analysis.

Day 2

-Creative Musicking and final interview-
On Day 2, we will have a creative music session followed by a final interview. The vocalist will have time to experiment with *ScreamScape* in whichever way they prefer—whether that is free improvisation, using a backing track, or playing with their own musical material. This session will also be video-recorded. Afterward, I will conduct the final interview, concluding the user study.

Designing the Interview and Survey

Interview Structure:

- **Semi-Structured**: Begin with specific questions, followed by an open-ended, informal discussion.
- **Question Types**:
    - **Background**: years of musical experience, familiarity with gestural control instruments.
    - **Experience/Behavior**: concerning the experience with ScreamScape during trial.
    - **Opinion/Values**: personal beliefs about the potential of ScreamScape.
    - **Feelings**: emotional responses to using ScreamScape (frustration, satisfaction, engagement, and creative flow during the interaction).
    - **Knowledge**: understanding of how ScreamScape works.
    - **Sensory**: how the system feels in their hands, and how intuitive the controls seem.

Conducting the Interview

Introduction:

Verbal introductory paragraph before the interview:

The purpose of this interview for me is to gain a more in-depth insight into usability features of ScreamScape, and for you to be able to share your experiences.

We will be having a semi-structured interview, which means that I will first ask you specific questions on your experience and impressions during your trial with ScreamScape. Feel free

to answer in whatever manner you see fit. After I finish asking my questions I would be more than happy to continue talking about ScreamScape in an informal manner. Just the two of us having a chat. Feel free to mention then what has not been said, add future ideas and so on. All audio recordings of this interview will be destroyed after being transcribed. Your data is being handled confidentially. If you want to opt out of being recorded in this interview, please tell me now. Do you have any questions before we start the interview?

Question list (not exhaustive):

Background (Anonymous):

- How long have you been involved in music, and what instruments or technology do you use?
- Have you used musical technology that is based on gestures and motion before?

Experience/Behavior:

- Can you walk me through your experience while using ScreamScape?
- Did you feel you could communicate your musical idea with the instrument? In other words, how precisely could you translate your idea into motion?
- How did you handle unexpected behavior?
- How well could you troubleshoot without any help from me?
- Was there anything in particular you found difficult or challenging to use?

Opinion/Values:

- How well did ScreamScape cover your creative expectations?
- If any specific part of sound creation or any sound-coloring aspect could be produced by ScreamScape which it cannot do right now, which one would it be?
- How do you see ScreamScape fitting into your creative process?
- What potential do you think this technology has for your creative output?

Emotional Response:

- How did you feel when first using ScreamScape?
- Were there moments of frustration or excitement? Can you describe those situations?
- Were there moments where you felt especially connected to or disconnected from the instrument?

Knowledge Questions :

- How well do you think you understand the system after using it?
- Were there any functions or physical parts that were confusing?

Sensory Questions:

- How did the physical interaction feel to you?
- Did the gestures and movements feel natural or forced?
- How did the system respond to your movements?
- Did you feel instrument reacted appropriately and without any restraining latency?

Survey Questions:

The survey will be created on nettskjema.no. I do not know yet where I would locate this survey (either at the end of day 1 or before the interview on day 2). All rating questions are on a scale of 1-7 (1 worst - 7 best)

- How would you rate the overall creative potential of ScreamScape? (Scale 1=gimmicky, 7=substantial)
- Were there any physical or digital features you found particularly helpful or hindering? (Open-ended)
- How intuitive did using the instrument feel? (Scale or open-ended)
- Do you have any suggestions for improving the interface or controls? (Open-ended)
- Did you feel that all physical parts were appropriately placed for you to reach them or did it feel uncomfortable to play? (Open-ended)
- What was the biggest restraining factor? (Open-ended)
- Which functionality/ combination of functionalities did you like the most and why? (Open-ended)
- Did you discover a functionality you did not expect? (Open-ended)
- Do you have the impression that the instrument is engaging and exciting to play? (Open-ended)