

## Exploratory Study Procedure (Online)

*(Note: A background survey will be sent out during the call for participation: asking about their musical background, experience, material preferences, and availability)*

1. **Introduction (5 minutes)** *(An introduction about the study process will be given to participants at the beginning, and an information sheet will be sent by email.)*

- The purpose of the study.

- The purpose of this study is to understand how DMI designers design low-fi instrument prototypes with deformable gestures.

- Then, based on the results of this study, I can collect information on their requirements and prepare the functional deformable interfaces for the next study.

- The study processes. The study includes three main sessions. It will take up to 90 minutes on Zoom, during which time you are free to opt-out at any point. And if you need to take a break at any point, just let me know.

- Firstly, you will be asked to find available materials and do some prompt activities with them.

- Secondly, build an imagined instrument that works as if by magic and addresses the prompt.

- Finally, each of you will present your design and explain its functionalities by turns (i.e. how should the machine be played?). Then, the whole group will share comments, impressions and ideas.

- Sign for a consent form, which will be sent by email (video & sound recording, anonymous).

2. **Make non-functional instruments (35 minutes)** *(After participants sign the consent form, sound and video recording will be made of participants' interaction in each section.)*

- **Instructions for finding available materials at home (5 minutes)**

Possible materials including paper, fabrics, cardboard, disposable cups, paper plates, masking tape, a roll of twine, scissors, wire cutter, paper clips and pins, a roll of metal wire, plastic ball, elastic bands, straws and toothpick.

Now please search for those materials at home, and the main thing is the material could provide some shape-changing gestures such as stretch, bend, press, twist, squeeze etc. And some tools that can help you to physically connect them like glue or pins. If you cannot find anything useful, you can achieve these actions by folding paper.

- **Discussion and Promote Activities (15 minutes)**

- Open discussion. Each of you is encouraged to discuss your understanding of the materials you find. Some guided topics including:

1. What are your initial understandings of these materials?
2. Do you feel it will be easy/difficult to build an imagined instrument with these materials?
2. What will be your challenges to create a piece with those materials?
3. What do you think would help you use these materials to design?
4. What kind of instruments do you want to create with these materials? (Think about the physical design, shape, and gestures design)

- Prompt activities. Please find a paper to write some notes, you are provided with two prompt activities:

1. For each gesture (bend, press, stretch, twist, squeeze), write down a sonic element that you think could be expressed by the gesture. It could be any property about music you think could be connected with a particular gesture.
2. Draw some sketches based on each gesture (abstract drawing is fine).

- **Implementation: make an imagined instrument (15 minutes)**

Now you have some time to try out the materials for a while and explore it in your own way. Then based on your understanding, you are encouraged to use the available materials to build the machine that *works as if by magic* and addresses the prompt.

Please be aware that your instruments must involve one or more of the deformation gestures, which are: bend, press, stretch, twist, squeeze. You are free to test different materials at this stage; you are also encouraged to build more than one prototype if you have time.

You have about 15minutes in this session. After this session, each of you will present your instrument and explain its functionalities (i.e. how should it be played?).

### 3. **Presentation and Discussion (25 minutes)**

- **Presentation (10 minutes)**

Thank you for the hardworking. At this session, you will present your work to the rest of the group as a performance or demonstration.

Please take turns to 'play' the instrument and try to make the sound, explaining which gestures creates which sounds and how the object is handled and manipulated. Then, each presentation will be discussed and questioned in the group.

- **Open Discussion and Interview(15 minutes)**

It's nearly the end of this workshop. This session is a general discussion.

Now you are welcome to share comments, impressions and ideas based on this experience. You also could compare the qualities of each instrument if you want.

Interview questions:

1. Referring to the drawing and notes you did in the prompt activities, are you satisfied with your final work of this workshop? Why?
2. Have your understanding of the materials changed? if so, how and why?
3. The experiences of building non-functional instruments;
4. Challenges of building an instrument with deformation gestures;
5. What did you learn from today's activity?