Evaluation User Study Researcher Scripts

Overview

Participants will be presented with tasks and activities to complete using 4 main modes of interaction:

1. My Novel MIDI Controller with Touch-Free Gesture Interactions
2. My Novel MIDI Controller with Traditional Mouse & Keyboard Interactions
3. Logic Pro X DAW Piano Roll with MIDI Keyboard Interactions
4. Logic Pro X DAW Piano Roll with Traditional Mouse & Keyboard Interactions

The order of the controllers used to perform these tasks will be different to reduce the skill transfer effect. The order of each activity will be determined from the Latin Squares method.

Following the activities, each participant will answer some questions from a semi-structured interview and answer some questions in a short questionnaire. The observations and responses will be used to evaluate the performance of my Novel MIDI Controller, with some insight into how it compares to traditional MIDI controllers such as keyboards and DAWs like Logic Pro X as well.

Observation Activities Script

These activities are designed to allow the observer (me) some insight into what a user actually does and experiences when interacting with the various MIDI controllers and interfaces for music production.

Furthermore, these observation exercises will allow users to explain to me what they are thinking at all times when going through a certain process, as I will prompt them to do so. If a user mentions an interesting topic spontaneously during the activity, it would also be possible for this exercise to take on the same style of an interview about that topic on the spot.

If a user ever has any difficulty to do something, take that as an opportunity for them to explain why it's difficult, and what they would want in this situation instead. Make the participant feel comfortable with this notion as well.

Activity 1 (Play all the notes and chords in the G major scale/key):

I want you to play all the notes in the G major scale. Now, can you play all the chords in the G major key? Obviously, I shall provide guidance if the participant does not know the G major scale/key notes and chords.

Next I want you to make a recording of you playing all the notes in the G major scale.

Let's play the recording on loop. Now make an attempt at shifting the pitch of notes playing in realtime.

Get Quantitative Data for this by timing how long this takes. Also measure how many errors were made.

Continuously ask the participant to elaborate on what they like/dislike about the workflow.

Activity 2 (Load up an existing composition and then alter it (Alter Levels by Avicii)):

I have the MIDI file for the song Levels by Avicii. If the participant does not know the song, play it for them.

First, I would like you to load up the MIDI file into the interface (either the Logic Pro X DAW, or my Novel MIDI Controller app). Create a loop to play those 4 bars again and again.

Next, I would like you to simply play the MIDI and try and explain any patterns that you notice to me. Can you tell me what chords are played throughout the music? Can you tell me what the highest pitched note is? Can you tell me what key/scale the song is in?

Can you tell me what tempo the song is in? The tempo of the song is 128 BPM. Now, can you change the tempo to 120 BPM?

Now, you're going to alter this composition slightly. I would like you to first alter the top notes. Move the first F# to a D#. Move the first C#s to F#s. For the descending notes from C# to F#, I want you to flip them horizontally. Next, scan along to the C#s and move to up to As. Move the Bs up to G#s. Delete the next C# and instead add an F# in its place. Flip the last two notes horizontally. Take a listen. Sounds pretty weird? Next, you're going to change the chords to make it sound better. Try and change the C# minor chords to F# minor chords. Change the 1st and 5th B major chords up to G# minor chords. Play again. It's sounding a bit better, but the pitch bends don't seem to gel anymore. Turn the first pitch bend into a positive pitch bend that's small. Add some small positive pitch bends to the second half of each B2 major chord in the second bar. Add some small negative pitch bends to the second half of each F# minor chord in the fourth bar. Now play the track. How fun/easy was that to alter?

Get Quantitative Data for this by timing how long changing the notes/chords/pitch-bends this takes. Also measure how many errors were made in each.

Continuously ask the participant to elaborate on what they like/dislike about the workflow.

Activity 3 (Recreate an existing composition (Recreating Clocks by Coldplay)):

We're going to recreate an existing song in the key of F Minor, with a tempo of 131 BPM.

Adjust the tempo to 131 BPM. Now, enter 8th note D# chords for one bar. Next enter A# minor chords of the same length for two bars. Now, enter F minor chords of the same length for one bar. Loop this section (4 bars) and play it. If you're curious to hear the music as you're creating it you can leave the loop playing while we put notes in. Recognise it?

Now, we're going to add the melody. Enter an 8th note D# in a higher octave at the start. All notes will be the same length and will follow each other. Next, add a lower A# note followed by an even lower G note. Repeat this pattern until the end of the bar. Notice that the last G note is cut off. Now at the start of the second bar, enter a C# note, followed by a lower A# note, followed by an even lower F note. Repeat this pattern until the end of the second bar like before, where the last F note is dropped. Now, the third bar of notes is exactly the same as the second bar, so add all those same notes again. At the start of the fourth bar, add a C note followed by a lower G# note, followed by an even lower F note and repeat until the end of the bar where the last F note is dropped. That's Clocks by Coldplay!

Get Quantitative Data for this by timing how long adding the notes/chords takes. Also measure how many errors were made in each segment (initial setup, adding notes, and adding chords).

Now that you have recreated a famous song, you can pick any song you like and we can have a go at recreating it if you like?

Continuously ask the participant to elaborate on what they like/dislike about the workflow.

Activity 4 (Create your own musical composition):

Now that you have attempted to play notes and chords, and recreate some famous melodies, let's have a go at creating an original composition/song? You can use any workflow you like. You may start from scratch or load up one of the existing MIDI files as a start point. Ask the participant why they are using or not using certain features during this process.

Ask the participant to always explain what they are thinking out loud when creating the music or interacting with aspects of the MIDI controller/application. This way, I hope to notice trends that people subconsciously follow when creating/producing music with these forms of technology.

Now at this stage, the participant would perform the tasks again on different controllers with different interactions until they have tried all four. After trying all four, the participant is then invited for a quick follow-up interview.

Interview Script

1. As a quick reminder, what is your level of expertise in playing or creating music?

2. After interacting with all the different MIDI controllers and interfaces can you rank them from most favourite to least favourite and explain your rationale for this ranking?

3. For each MIDI controller/interface, can you explain the advantages and disadvantages of it?
    1. Rank the MIDI controllers in terms of labour/effort to use.
    2. Rank the MIDI controllers in terms of accessibility. Your thoughts on how much skill (either playing instruments such as piano or otherwise) is required to effectively create good compositions with each MIDI controller.

4. If you wanted to create a composition from scratch without any initial ideas, which MIDI controller would best serve you and your creativity?
    1. Can you explain why that controller helps your creativity?
    2. Explain the advantages and disadvantages of the other controllers in terms of creativity.

5. If you already had a composition idea in your head, which MIDI controller would you seek to use?
    1. Explain why/what features of that MIDI controller help you get the idea out of your head.
    2. Explain the advantages and disadvantages of the other controllers in terms of making composition ideas tangible.

6. If you wanted to tweak the pitch of an existing composition using pitch bend, which MIDI controller would you seek to use?
    1. Explain why/what features of that MIDI controller help you bend pitch.
    2. Explain the advantages and disadvantages of the other controllers in terms of making sound effects such as pitch bend.

7. Which MIDI controller did you feel was most enjoyable and fun to use? Disregarding the quality of the music compositions, which one would use if you just wanted to have a good time?
    1. Explain why/what features of that MIDI controller promotes fun.
    2. Explain the advantages and disadvantages of the other controllers in terms of making music composition fun.

8. Focusing on the Novel MIDI Controller, what were your thoughts on it?
    1. Did you enjoy using the touch-free/gesture interaction? Explain why?
    2. Did you find the touch-free/gesture interaction productive? Explain why?
    3. How does the touch-free interaction affect your creativity and/or productivity?
        1. Compare this to the MIDI keyboard.
    4. Did you enjoy using the mouse & keyboard interaction? Explain why?
    5. Did you find the mouse & keyboard interaction productive? Explain why?

6. How does the mouse & keyboard interaction affect your creativity and/or productivity?
    1. Compare this to the Logic DAW Piano Roll.
7. Which mode of interaction do you prefer? Which scenarios would you use one mode of interaction over the other?
8. What were your thoughts on the pinch interaction in general, where you could pinch to play/pick up notes/chords/pitch-bend effects?
9. Could you elaborate on any other ideas you had when interacting with the Novel MIDI controller, either through gesture or mouse & keyboard?

9. Do you have any other thoughts or suggestions you wish to share for the Novel MIDI controller (or any of the other controllers) that have not already been mentioned?

Now conclude the interview session and thank the participant for their time, answer any questions, and hand over the questionnaire for them to fill out.

Questionnaire

The questionnaire is made up of multiple questions that make use of a Likert scale with the "Strongly Disagree", "Disagree", "Neutral", "Agree", and "Strongly Agree" options to statements. The main purpose of the questionnaire is to gather data on participants' feelings about my Novel MIDI Controller in particular.

Here are the statements presented to participants:

Regarding the interfaces of the Novel MIDI Controller:

1. I understood the live mode interface without asking for help.
2. In live mode, I could easily pick the right musical key for a certain emotion I wanted to evoke.
3. I understood the editor mode interface without asking for help.
4. In editor mode, I could easily pick the right musical key and the right tempo for my composition.
5. The live mode interface was well organised visually.
6. The editor mode interface was well organised visually.
7. I could easily understand what notes, chords, and pitch bend effects were present in the editor mode at all times.
8. The live mode of the Novel MIDI Controller made it easier for me to play notes, chords, and add pitch bend effects.
9. The live mode of the Novel MIDI Controller extended my capability to play notes, chords, and add pitch bend effects.
10. The editor mode of the Novel MIDI Controller made it easier for me to compose and edit notes, chords, and pitch bend effects.
11. The editor mode of the Novel MIDI Controller extended my capability to compose and edit notes, chords, and pitch bend effects.
12. Overall I found the interfaces intuitive.

If you have any additional comments please leave them here:

Regarding the Interactions with the Gestures on the Novel MIDI Controller:

1. I felt that using my hand to make gestures to interact with musical notes, chords, and the pitch-bend effect enhanced my creativity.
2. I felt that using my hand to make gestures to interact with musical notes, chords, and the pitch-bend effect enhanced my productivity.
3. I felt that using my hand to make gestures to interact with musical notes, chords, and the pitch-bend effect enhanced the enjoyment of making music.
4. I found the gesture interactions easy to use and understand.
5. I found the workflow of editing compositions with the gestures easy to use and understand.

6. I found the workflow of playing live notes, chords, and pitch bends with the gestures easy to use and understand.
7. Overall, I would like to use these gesture interactions again in the future for creating and editing music with MIDI.

If you have any additional comments please leave them here:

Summary of the Novel MIDI Controller:

1. I found the Novel MIDI Controller to be more accessible than the other MIDI controllers and interfaces.
2. I found the Novel MIDI Controller to be more intuitive than the other MIDI controllers and interfaces.
3. I found the Novel MIDI Controller to be more powerful than the other MIDI controllers and interfaces.
4. If I want to recreate existing music, I would prefer to initially use the Novel MIDI Controller before anything else.
5. If I want to simply have fun with music and music theory, I would prefer to initially use the Novel MIDI Controller before anything else.
6. If I have inspiration to create music, I would prefer to initially use the Novel MIDI Controller before anything else.

If you have any additional comments please leave them here:

Conclusion

Thank you so much for taking part in this study, and I hope you had fun along the way as well! Formally conclude the session, thank the participant for their time. Any questions? Answer any questions the participant may have.