

Research Sound Guidance Script

Hello, participants. Thank you very much for your support in this research. As stated on the information sheet, this study will be divided into four parts: a questionnaire, sound exercises, a VR and ambisonic sound experience, and a final feedback questionnaire. The total duration is approximately 2.5 hours. There will be a 20-minute break in between, during which free drinks and snacks will be provided. In some parts of the experiment, you will need to close your eyes to listen and then open them to record content related to the sounds and your feelings. Please don't worry; I will remind you when it's time to record and what needs to be noted.

Now, we will begin the sound practice section. You will enter a quiet space; please relax your body and mind, gently close your eyes, and sit comfortably. We will start this phase by listening to a piece of soothing music.

(Play soothing music: [Spotify

Link](<https://open.spotify.com/track/4FLsjuJozQB6ZP0fg49SRy?si=6331164be2a6473b>))

Very good. Now, I will play some beats at different frequencies. As the speed changes, your emotions may experience positive or negative shifts. If you feel any negative emotions, please raise your hand.

(Play sounds at 30 Hz, 300 Hz, 200 Hz, 10 Hz for 4 minutes)

Next, I will clap my hands in various corners of the room. There are four positions in total, and I will clap three times at each spot. Please record the approximate direction and distance of the sounds you hear. For example, after a clap, you might note: "close; left/right; far."

Clapping positions: left wall, back wall, right wall, above between the two participants (30 seconds × 4 = 2 minutes)

In the upcoming experiment, you will need to use headphones. There is music playing in them now; you should hear sounds in both the left and right sides. If the headphones are not working properly, please raise your hand to inform me. In the subsequent exercises, you will need to follow the voice prompts in the audio. Unless you feel unwell, please do not remove the headphones during the session. Please put on the headphones now.

(Music plays.) (Give a thumbs-up to confirm that participants have put on the headphones correctly and that there are no issues.)

1. You will hear a noise with continuously changing frequencies. This sound will be played once in the left earphone and once in the right. Please note that when you

hear the sound, immediately raise your hand and keep it raised; when you no longer hear the sound, lower your hand immediately. You need to listen with your eyes closed during this process. Now, we'll start playing the sound in the left earphone; please close your eyes. (Play the sound, separately in the left and right ears.)

2. Now, we'll start playing the sound in the right earphone.
3. Very good. Next, we will do a meditation session. Please relax; we will begin now.

(Meditation – Deep relaxation into the senses: [Meditation

Link](<https://mymedia.leeds.ac.uk/Mediasite/Play/3a3b6061e16b46c98ac30b0c4afd31541d>); [James Taylor](<https://www.jamestaylorleeds.co.uk/about-me>)) (Reduced to 5 minutes)

4. In your mind, please answer: Do you feel relaxed? Next, you will hear sounds from various life scenarios you may have encountered before. You will be given paper and a pen. Please close your eyes to listen to each sound, then open your eyes and record on the corresponding section of the paper the source of the sound, the possible scenario in which it occurred, and your feelings. Each sound lasts 20–30 seconds, and you will have 1 minute to record after each one. I will remind you when there are only ten seconds left for writing. If you have any questions about the instructions, please raise your hand now.
5. Alright, the experiment begins now.

(5-1. Next, you will hear sounds of items that might be used from childhood to middle age.

5-2. Then you will hear some sounds from social environments.

5-3. Finally, you will hear some sounds from natural environments.)

(Play audio) $6 \times (30 \text{ seconds} + 1 \text{ minute}) = 9 \text{ minutes}$

6. Very good. Next, I will play some industrial environment sounds related to the research topic that you may not have experienced before. Similarly, you need to close your eyes to listen to each sound, then open your eyes and record the source of the sound, the possible scenario in which it occurred, and your feelings. If you have any questions, please raise your hand.
7. Alright, the experiment begins now.

(Next, you will hear the sound of xxxx. Then you will hear the sound of xxxx. Finally, you will hear the sound of xxxx.)

(Play audio) $3 \times (30 \text{ seconds} + 1 \text{ minute}) = 4.5 \text{ minutes}$

8. Now comes the final part of the sound exercises. Please raise your hand to inform me of your progress; I will distribute a form to you and adjust the equipment.
9. In a moment, you will hear three virtual sound environments in succession. You can explore these environments by turning your head. The directions in the virtual sound environment correspond to reality, meaning you should describe the positions of the sounds based on how you perceive their direction as you sit now. Each sound lasts 2–3 minutes, and you will have 2 minutes to record on the form the position of the sounds in the environment, their distance from you, what material or object might be producing the sounds, how the object produces sound through movement, and your feelings about the sounds. You can find all these details on the form. I will remind you when there are only ten seconds left for writing. If you have any questions, please raise your hand.

Now you will explore the first sound environment..... Next is the second sound environment... Finally, the third sound environment. (15 seconds + 3 × (3 minutes + 2 minutes) = 15.25 minutes)

10. Thank you very much for your cooperation; the sound exercises are now complete. You will have a 15-minute break. Please do not stand up or move around; I will adjust the room lighting for you. When you feel ready, please feel free to stand up slowly and take a break.

I prepared coffee and tea for you. During the break, I will equip you with microphones and have a quick chat with you about your experience. Please follow me to the kitchen area. If you need to leave temporarily, please return here by -.

We will now proceed to the final part of this phase, divided into two sections: the Factory Work Environment Experience and the VR Treadmill Exhibition. We will practice together how to walk on the VR treadmill. However, since the treadmill can only be used by one person at a time, you will experience these two sections separately.

In front of you is the VR Omnideck. Because this research focuses on how sound helps you explore environments that have disappeared or are difficult to reach, this experiment does not involve visual participation. That means you will make decisions based on the sound information you hear, but visually it will be a blank. Since we usually rely on vision to move around, you will undergo a series of training sessions before the experiment begins to ensure you can safely use the Omnideck. Similarly, you should focus on your position in this environment, your understanding of the environment, the role you play, and your feelings here. After the formal experience, you will need to fill out a form. We will start with the participant on the left.

I will distribute protective gear to everyone. Please put it on.

Next, we will experience standing and walking on the Omnideck without VR goggles.

Then you will wear VR goggles and experience standing and walking on the Omnideck with visual references.

Next, you will experience walking with the visual effects turned off.

This concludes the training on using the treadmill. We will now split into two groups to experience the two experiments and then switch places. Is there anyone who feels uncomfortable using the treadmill and wishes to skip this phase?

Who would like to start this phase with the treadmill? (Alright, please wait here for a few minutes; I'll adjust the equipment for the other participant first, and we'll start when I return.)

(On the way, introducing the second project) The Factory Work Environment Experience involves listening to three descriptions from factory workers about their work environments. Some of these environments no longer exist, while others still do. Like the previous experience, once the sound starts, the direction you're facing will always be forward; you can turn your head to explore the sound environment. However, this time you should focus not on the positions of the sounds but on your position in the environment, your understanding of it, the role you play, and your feelings. I will give you a form. After each sound experience ends, you need to fill out the information on the form truthfully. The sounds will play automatically, and there will be a voice prompt when they end. Please return to the treadmill position afterward. (2 minutes 30 seconds + 3 × (5 minutes + 2 minutes) = 23.5 minutes)

(Returning to the treadmill) Did you adapt well just now? Are you ready to start the formal experiment?

At the end of the experiment, there is a short interview and a feedback questionnaire for you to complete. Then the experiment will be over. Please be sure to provide complete and honest feedback about your feelings; this is really important for our study. (30 minutes)

Thank you both very much for your participation. I hope this experiment helped you relax and that you enjoyed it. I greatly appreciate your support! If you have any questions, please feel free to contact me. Here is my contact information (hand over a business card). People who joined the experimental group will receive two emails from me after a week and two weeks. I will ask you some questions about the experience. See you next time!