Music Perception & Cognition Project Draft

Teammates:

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· **Research question:** Study of how different variables (in relation to human hearing and visual characteristics) could be related to the JND of brightness depending on different sounds and visual images.

· **Short explanation**. Both audio and image have different definitions of brightness. The purpose of our experiment is to analyze if there is any relation between both concepts and how subjects perceive this relation depending on the variables listed below.

· **Variables**:

- If the subjects listen regularly to loud music
- Gender
- Age
- Genetic conditions
- The rooms where the experiment is taking part
- Musicians and non-musicians
- Experiment done in the morning and in the evening

· **Subjects**

- We need subjects for our experiment. We thought about recruiting at least 16 people in 3 different groups: gender, age and musician/non-musician. We are planning on asking friends, family, fellow students and even mtg professors, depending on the age we need.

· **Procedure**

- Depending on the subject. If friends or families can take part in the experiment, we could do it at home with the proper equipment (headphones, software and hardware). If the subjects are located at the university, we are planning to ask for permission to use the recording studio.

· **Instructions**

- Answer habits survey:
    - How long do you listen to music/audio using headphones?
    - Are you a musician? (yes/no)
    - How would you define brightness in both audio and image?
    - Which of the following images (we can propose a few) are brighter than the other? (This is to know if there is a pattern in brightness perception in images)
    - Genetic hearing problems
    - (Maybe other questions arise)
- We will use headphones.

        - We will make the subject listen to different audios while we show them different images.
        - Whenever the subject hears a change they will have to make it known to us.
    - The test will be done twice per subject, once in the morning and once in the evening, to check if tiredness has an impact on the experiment (if possible).

· **Stimuli**
    - We are going to use digital sounds, which could be created with any sound software.
    - We are also going to use images, for the moment pure colors but maybe we adapt it in the future.

· **Devices and software needed to carry out your data collection activities**
    - The most important part of our experiment are the **headphones**. We need at least a pair of them, the best ones we could have, in order to perform the experiment always with the same pair.
    - We will need a survey platform, but we think it is not necessary to ask the university for it. There are plenty of them online.

· **Would you need other materials for the study?**
    - Yes, we would need access to a recording studio from the La Nau building to minimize foreign sounds and get good sound quality (if possible).

· **How are the subjects' responses going to be encoded and stored? Provide a mockup of your intended data file.**
    - We will use google forms for the surveys.
    - We could use Excel (for example) in order to record and store all the data collected from the subjects' perception and response to our experiment.

· **Further data processing you plan to do with the data**
    - No for the moment.

· **Short list of references**

    - **https://online.ucpress.edu/mp/article/39/1/1/118490/Does-Timbre-Modulate-Visual-Perception-Exploring**
    - **https://arxiv.org/ftp/arxiv/papers/2011/2011.06456.pdf**