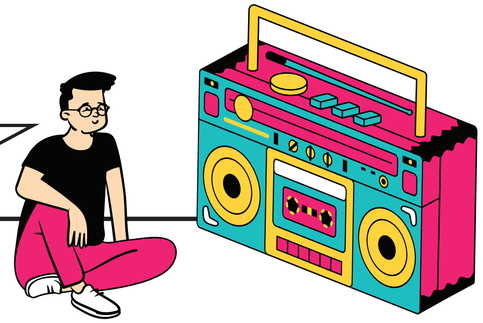
An Investigation into the Impact of Audio Quality on Music Enjoyment:

A comparative User Study of Music formats

Hi! i'm **Atharva Gokhale**



Abstract

The aim of this study is to investigate whether individuals can discern perceptible differences in audio quality among various music samples, including CD quality, Spotify's OGG Vorbis, and high-resolution formats. Through a comparative user study methodology, this research integrates qualitative and quantitative data. By blending these dimensions, it aims to uncover the intersection of perceived audio quality and the emotional depth of music encounters. This endeavor contributes to a comprehensive understanding of the intricate interplay between audio quality, perception, and the holistic music experience.

Introduction and Background

As music consumption undergoes technological shifts, the significance of audio quality in shaping music enjoyment, gains prominence. In this study, I delved into analysing music qualities and their prception and its potential impact on the emotional aspects of music experiences. Conversations on platforms like audio blogs reflect both curiosity and skepticism about perceiving audio quality variations. Empirical studies offer diverse findings, with some asserting human discernment and others emphasizing the constraints of human hearing.(Intagliata, n.d.; Oohashi et al., 2000; "Reddit - Dive into anything," n.d.) Incorporating insights from literature reviews, this study aligns with the consensus that superior audio quality elevates music enjoyment, while compromised quality diminishes it. By analyzing both qualitative responses and quantitative rankings, this research seeks to unveil the nuances of participants' perceptions and the potential implications on their emotional engagement with music. (Počta and Beerends, 2015)

Methodology, Testing & Analysis

1. Participants:
- A total of *10 participants* were involved.

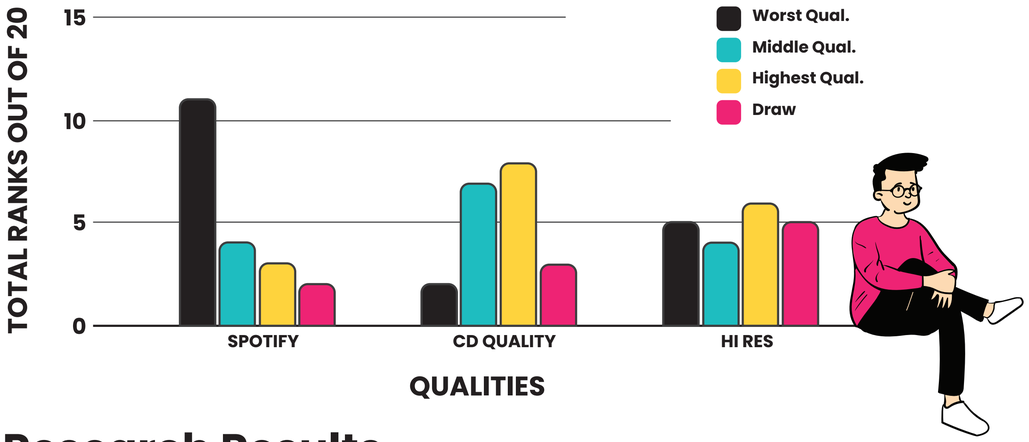
2. Materials:
- 2 distinct songs.
- Each song is split into 3 unique audio samples.

3. Procedure:
- Participants listened to the samples from each song.
- They ranked each sample from 1st (best quality) to 3rd (worst quality).
- If a participant perceived a difference in quality, they raised their hand.
- The exact time and specific nature of the perceived difference were documented.

4. Scoring System:
- Points were allocated to participants based on the accuracy of their rankings, which were converted to percentage.
- The purpose of this scoring was to assess participants' ability to detect variances in audio quality.

5. Data Analysis:
- Rankings given to each sample by all participants were consolidated.
- The sample with the majority of 1st ranks was identified as the best quality.
- The sample with the majority of 3rd ranks was identified as the worst quality. As shown in the graph on the right.

Diagram



PARTICIPANTS	SCORES IN %
1	83.33%
2	66.66%
3	16.66%
4	83.33%
5	16.66%
6	66.66%
7	66.66%
8	33.33%
9	16.66%
10	0%

Research Results

In the study, Spotify's audio samples consistently ranked last, being placed in this position 11 out of 20 times. Interestingly, there were more ties in quality perception between Spotify and Hi-Res than between CD and Hi-Res, even though CD and Hi-Res had the highest number of draws overall. As for the participants, they were divided down the middle in terms of performance, with half accurately discerning audio quality and the other half not. Further insights from a word cloud analysis underlined a clear connection between higher quality music and enhanced listening enjoyment.

Conclusion & Future Work

The study underscores the potential enrichment of the music experience through high-quality audio listening. Listeners are encouraged to explore Hi-Res formats, as it may notably elevate their auditory appreciation. Looking ahead, expanding this research to involve a larger participant pool could offer more comprehensive insights. Additionally, delving deeper into the technical intricacies of music in future studies might shed light on specific aspects influencing perceived audio quality.