CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

Sierra L. Courchesne

Project Number

J0707

Project Title

Studying with Music: Advantage or Not?

Abstract

Objectives/Goals

Many middle school students spend large quantities of time on electronic devices listening to music, sometimes even while completing homework or studying. The impact of this behavior is not clear. Some middle school students enjoy pop music but really dislike classical music. The goal of this study was to examine memory ability while exposed to various auditory conditions.

Methods/Materials

Twenty middle school students participated. Students were asked to memorize a list of 10 words while exposed to one of five auditory conditions (i.e., preferred music, disliked music, silence, classical music, and distracting noises). Subjects first rated music genres from 0 - 10 (0 being they hate it and 10 being they love it). In order to control for order effects, word lists were randomly paired with an experimental condition. A stop watch was used for precise timing of word exposure and memory testing.

Results

Out of the 5 different experimental conditions, the classical music condition helped subjects memorize the greatest number of words regardless of their preference in that genre (mean number of words correctly remembered = 5.25). The preferred condition proved to have the worst results (mean number of words correctly remembered = 4.15). The classical condition memory score is 26.5% better than the preferred condition memory score. This is a highly statistically significant difference. It is possible that scores plummeted in the preferred condition because subjects listened to their favorite song, and did not attend to the task at hand. Subjects also performed poorly in the silence and non- preferred music conditions (mean number of words correctly remembered = 4.45 for the silence condition and 4.45 for the non- preferred condition). Interestingly, the noise condition produced slightly better results than silence and preferred conditions (mean number of words correctly remembered = 4.750).

Conclusions/Discussion

The results of this experiment supported my hypothesis and made the unique discovery that classical music is the most appropriate setting for memorizing words and concentrating. This is interesting because some subjects rated classical music very poorly, indicating they did not enjoy this music type. The other conditions might have been distracting to subjects and suggest that middle school students should not study while listening to their favorite music.

Summary Statement

Studying with classical music can enhance short term memory performance when studying or completing homework compared to a neutral, quiet environment or preferred music.

Help Received

None. I designed and ran the experiment myself. My parents taught me how to use Excel and how to enter my data into a spreadsheet and how to import that into SPSS.