



Effects of Music Genres on Short Term Memory

Ishita Mohan¹, Dr. Angie Chen²

¹Henry M. Gunn High School, ²Stanford University



INTRODUCTION

Music is an integral part of human society. It has taken over our modern society through radios, concerts, and social media. Music is something that many students find relaxing and enjoyable (Burdette, 2017). However, students and teachers often debate about whether listening to music is beneficial when performing certain tasks (Curtis and Fallin, 2014). Further, it is questionable if all genres of music have the same effect on a student's memory - which is accessed in the temporal lobe of the brain as shown in Figure 1 below. I propose to investigate (i) whether music is beneficial, and (ii) if particular genres of music are more beneficial on the number memorization abilities of a student.

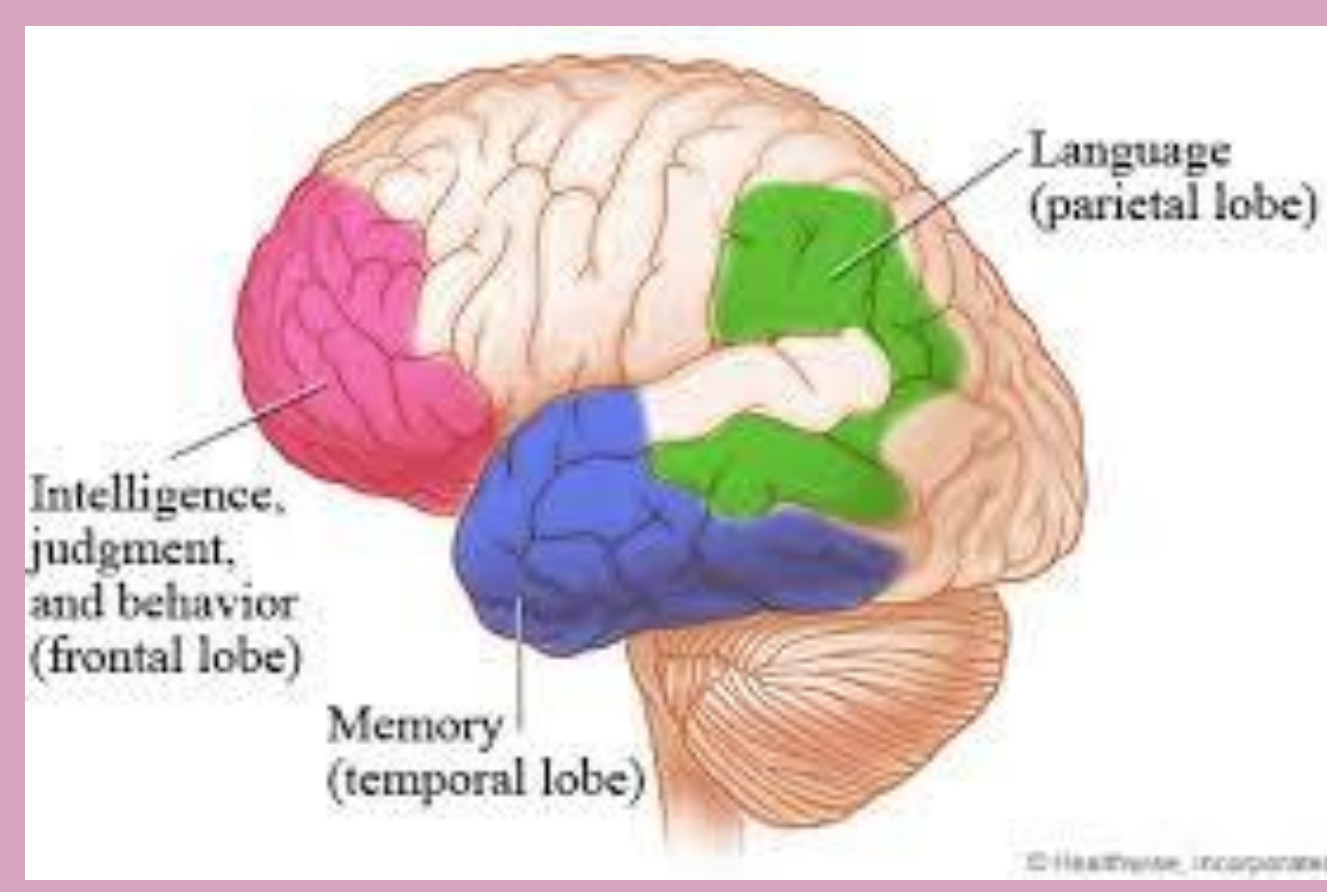


Figure 1: This is a basic image of the brain. The blue region, known as the temporal lobe, is where memory is used and accessed.

RESEARCH METHODOLOGIES

- I conducted a research study among a population of 32 high school subjects (16 male/16 female).
- First, I used a survey method to find out (i) if students listened to music and (ii) what genre of music they listen to. Based on this information, I chose three genres of music to use for the test (refer to Figure 3 and 4).
- I used the same music on each subject (3 different times), and they took the Human Benchmark Number Memory Test (refer to Figure 2).
- I recorded the total number of numerals each student could recall under the various experimental conditions.
- I used descriptive statistics to analyze the data from the study.

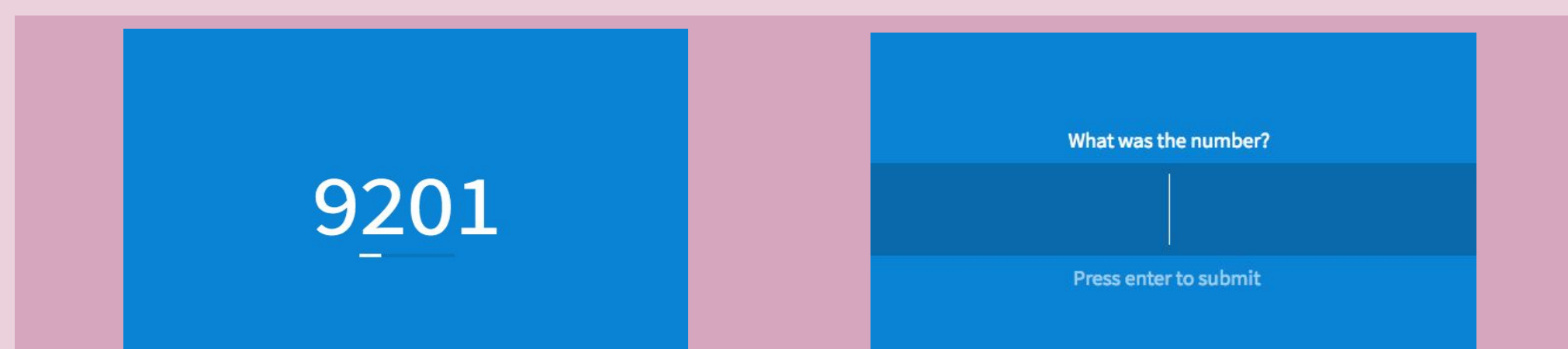


Figure 2: Example of the Human Benchmark Memory Test.

DATA AND FINDINGS

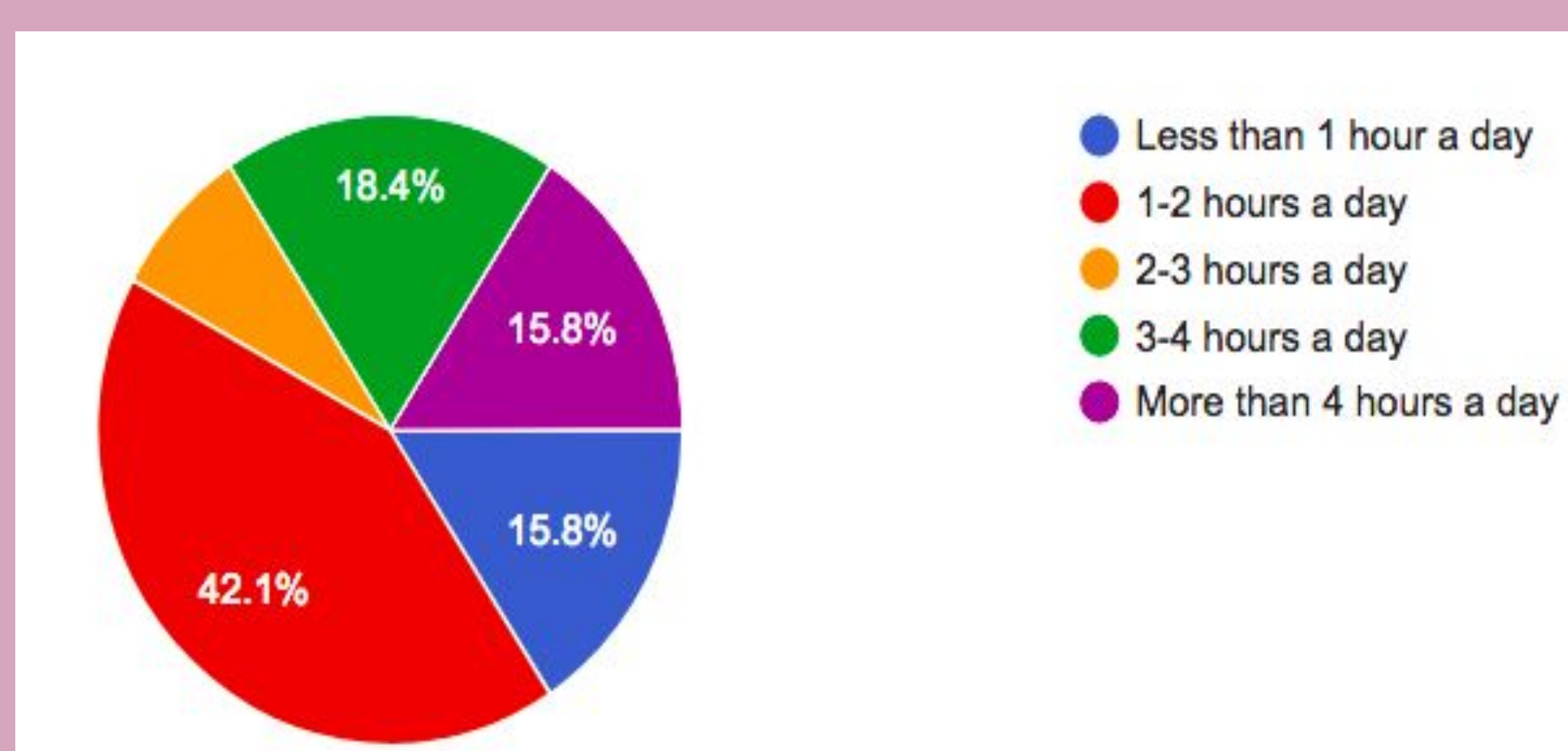


Figure 3: Survey Response of 38 students to the question "How often do you listen to music?"

DISCUSSION, ANALYSIS, AND EVALUATION

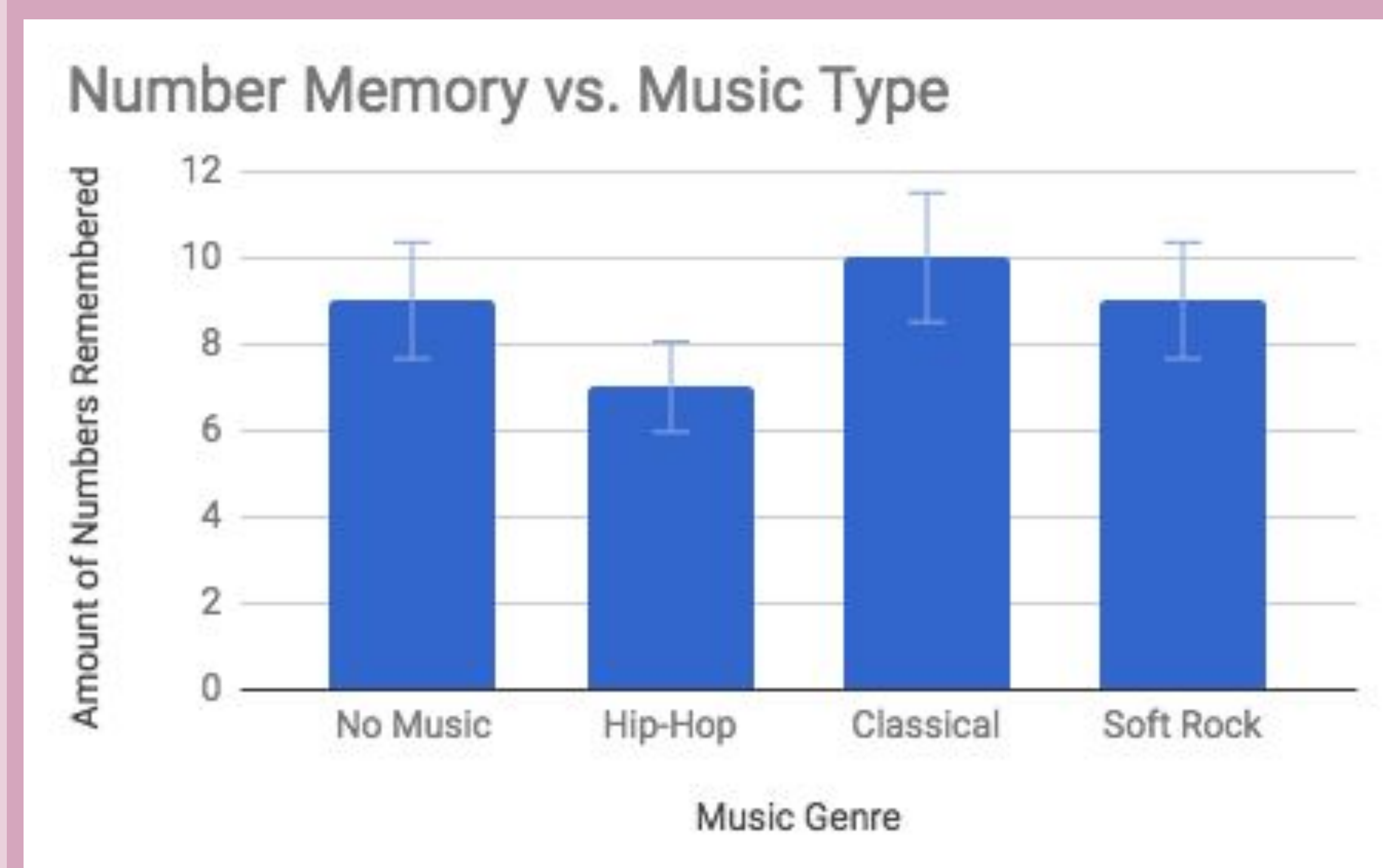


Figure 5: Memory data from 32 test subjects tested with no music, hip-hop, classical, and soft rock.

Each subject listened to (1) Hip-Hop genre music (Bodak Yellow by Cardi B), (2) classical genre music (Sonata for Piano 4 Hands in F Major, K. 497: III. Allegro by Wolfgang Amadeus Mozart), and (3) soft rock genre music (Angel by Sarah McLachlan). This was considered one trial, and a total of 3 trials were performed, each with the song choices in a different order.

Each subject's trials was taken, and these averages were further averaged in order to get a collective amount of data.

From this data (Fig 5), when no music was playing, people averaged an ability to memorize 9 numbers; with hip hop music, they averaged 7 number memorization; with classical music, they were able to memorize up to 10 numbers on average; and with soft rock music, they averaged 9 number memorization.

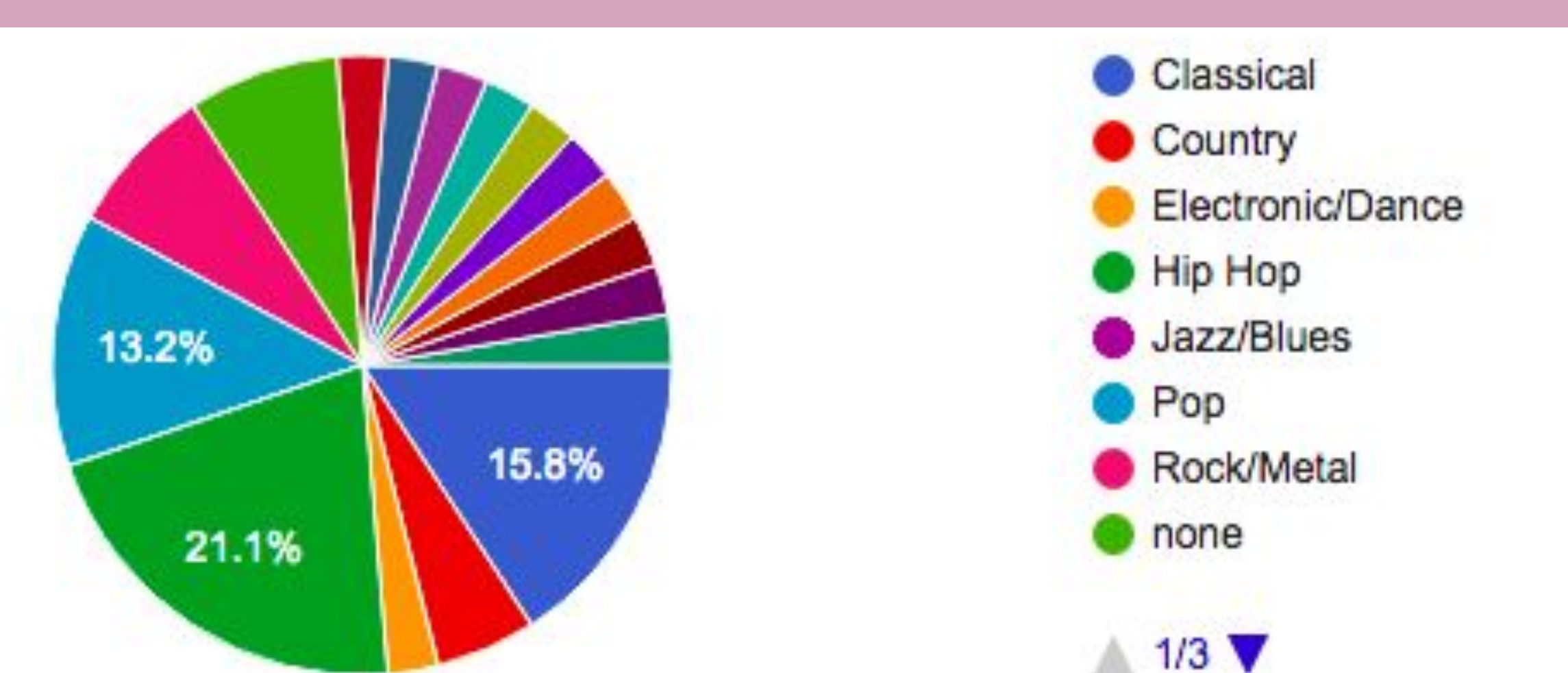


Figure 4: Survey Response of 38 students to the question "What type (genre) of music do you listen to while doing homework?"

CONCLUSIONS, IMPLICATIONS, AND NEXT STEPS

From data collected from 32 test subjects, the general trend was that listening to classical music resulted in the highest amount of numbers (10) being memorized. No music and soft rock music resulted in the second highest amount of numbers (9) remembered. Hip-hop music had the least number of numbers remembered (7) out of the 3 genre options (refer to figure 5). From the standard error bars, I cannot make a definitive conclusion as to which music type is most beneficial. I would have to conduct this experiment on a larger sample to get a more definitive result between the two.

One interesting thing about the classical piece I chose is that the same type of classical music (by Mozart) was conducted on pregnant women, to see if it had an effect on babies. It seemed to soothe babies (Petr Josek Snr), as well as increase the memory efficiency in my experiment.

Further, on average, the female subjects seemed to remember more numbers than males (No music: F - 10, M - 8; Hip-Hop: F - 7, M - 7; Classical: F - 11, M - 9; Soft Rock: F - 10, M - 8).

If I were to do this experiment again, I would see how music affects brainwave patterns, to see direct measurements of the impact music has. I would also build on earlier experiments done on pregnant women, and see if different types of genres of music have a beneficial impact on babies.

ACKNOWLEDGEMENTS / REFERENCES

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