**GENERAL LAYOUT FOR AN EXPERIMENTAL DESIGN DIAGRAM**

**TITLE**

The Effect of an individual’s memory by playing different genres of music.

**HYPOTHESIS**

If playing background music while completing a memory task improves memory retention, then calming “Zen” music will have the greatest positive effect, because the song has less beats per minute causing the person to relax and think better.

**INDEPENDENT VARIABLE**

Genres of music being played.

**LEVELS OF INDEPENDENT VARIABLE AND NUMBERS OF REPEATED TRIALS**

|  |  |  |  |
| --- | --- | --- | --- |
| No music  |  Music (heavy metal) | Music (Zen) |  Music (Pop)  |
| 5 people  | 5 people  | 5 people  | 5 people  |

**DEPENDENT VARIABLE AND HOW MEASURED**

The amount of time needed to solve the card game measured in seconds.

**CONSTANTS/CONTROLS (Number of constants depends on experiment)**

1. Everyone listens to the same music.

2. All trials are in the same setting.

3. Same cards used for trial.

4. Same volume level for music

5. Everyone is the same age (In this experiment, 2001, Grade 10)

**PROCEDURE:**

1. Place 20 cards face down on a table in the pattern suited for the genres of music due to the colour of sticky notes on the playing cards, and place them out in their number order on the front of the cards, from left to right with 5 across and 4 down.
2. Make sure to remove the sticky note from the first card.
3. Orange, No music. Pink, Heavy Metal. Green, Zen. White, Pop.
4. Choose one heavy metal song, one Zen song and one pop song and play for each person.
5. Have the individual flip the cards over to find the pairs (same numbers, the suit doesn’t matter.),
6. First trial is with no music.
7. While the individual is solving the memory game, use a timer to test the length it takes to solve.
8. Next grab the group of cards that matches with the music for the next three trials.
9. Using headphones, play the different types of music at different times and time for each.
10. Record the time for each trial in the observations boxes.

**OBSERVATIONS:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Individuals** | **No Music****Time (s)**  | **Heavy Metal****Time (s)** | **Zen****Time (s)** | **Pop****Time (s)** |
| **Individual 1** | 1:00.02 | 1:07.48 | 50.30 | 27.64  |
| **Individual 2** | 1:18.09 | 1:35.54 | 1:24.49 | 1:03.52 |
| **Individual 3** | 48.09 | 1:20.20 | 57. 28 | 50.40 |
| **Individual 4** | 45.52 | 52.03 | 36.87 | 30.81 |
| **Individual 5** | 49.45 | 1:03.67 | 40.03 | 38.47 |

**RESULTS:**

Results showed that there was no real drastic change for one type of genres. The time was all under two minutes and for some individuals even under one minute. Starting with the heavy metal music, I observed the panic it put towards each person, causing them to be distracted by the loud sounds and not focused on finding the pairs from the card game. The heavy metal had the longest time for each person.

The next genres of music was “Zen”. In my hypothesis, I predicted that this category would have the fastest time, but it turned out to have no real outstanding results compared to the control group of no music. When listening to the Zen music, it has a very mellow, slow, and peaceful beat to it, which created a very calming atmosphere towards everyone, it also made them very relaxed causing them to play the game slower, increasing their time.

The “Pop” genre had the fastest time for everyone, out of all the genres. While the song was playing, it had a happy upbeat tune to it which made the individuals create a rhythm, and make there thinking faster as they moved with the beat of the song.

**CONCLUSION/DISCUSSION:**

 This experiment investigated how different genres of music effected the memory of human individual, by seeing if music was a distraction towards ones thinking and memory process. In order to study the problem five individual’s memory were tested by using a card game, first, one would play the game with no music, then three more trials with music, using three different types of genres (Heavy metal, Zen and Pop). Then repeated with the other people. Each trail was timed and then recorded to compare to the other genres. The time was used to see if the music played any effect towards the persons thinking. Results showed that the pop music had the least amount of time needed for everyone and that the heavy metal music took the longest. For the pop music, it had an upbeat tune which created a calming yet energetic atmosphere which created a faster pace for each person, resulting in the fastest time and the heavy metal song had the fastest beats per minute and loud in some cases “scary” singing, which created a panic towards the players of the game, resulting in the longest time due to their memory being distracted. This proved that the hypothesis that if playing background music while completing a memory task improves memory retention, then calming “Zen” music will have the greatest positive effect because the song has less beats per minute creating the player to relax and think better, was negated, because the prediction stated that the “Zen” music would take the least amount of time, but created a slower time then “Pop” music. To extend this experiment, more genres of music could have been used, to see if there were any different results or a bigger difference in time. Another way to extend this experiment would be tested different ages as well. This experiment only tested on teenagers, and by tested on older adults, a way different results could occur. If the experiment was repeated, instead of using 20 cards, using 40, due to 20 becoming too easy by the last round for each person. For each trial, all five people would complete the testing in one day, first, at different times each person would complete the control group, then wait their turn to then complete the other variables. This would give them some time to recover and not begin to create some type of strategy towards the card game. Some questions about the experiment are, why does the music with more beats per minute create a type of panic towards someone? Can this card game reflect towards each person’s personal memory? And lastly why was the genres of “Pop” the music that created the best focus and the best memory out of the three genres?