

# The effects of music on memory psychology essay



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Memory is the power of a persons mind to remember things where it is a mental activity that involves receiving, storing and recalling information. The microscopic chemical changes which occur at the joining points between neurons in the brain are where the memories are stored.

The activity of the neurons in the brain, when the information flows through, affects the strength of the response. The strength of the synapses, or termed as synaptic plasticity, is the way the brain stores information. An active synapse can induce a strong memory whereas a weaker synapse induces a weaker memory stored.

Memory is categorized into three categories: sensory memory, short-term memory and long-term memory. Sensory memory is the shortest type of memory where it holds an exact copy of information for a few seconds.

When information is received, it first enters the sensory memory, then short-term memory and finally long-term memory. However, not all information

enters the long-term memory. Selective attention regulates the entry of information into short-term memory and the unimportant ones are discarded permanently (Coon, 1997). Long-term memory is stored in hippocampus in brain.

It has been reported that music affects human in many ways, for example, one's emotions and behaviours. Studies have found that music not only reduces stress but it also aids in storing and recalling information. The hormone cortisone which causes stress is found to decrease in amount through listening to music.

Among all the genres of music available in these days, the research studies found that classical and baroque compositions which usually maintains a tempo of 60 beats per minute achieve the best effect on memory. This 60-beats-per-minute tempo activates the right hemisphere of the brain while the left hemisphere is activated by the information received. Information can be processed more efficiently when both hemispheres are activated. In addition, it is also determined that music can improve one's creativity.

Furthermore, it is also found that the brain actually focuses on patterns subconsciously. Classical and baroque music consist of a specific structure that repeats once throughout the song. A research pointed out that music with many repeating sections is distracting. Hence, it does not benefit the brain to boost up memory recall.

A study was also conducted on memory tests of people who have Alzheimer's disease. It is found that they have improved memory for shapes and patterns when they listened to Mozart.

It is seen that many studies and research have found that music can improve the storage and recall of information in one's memory. An experiment is conducted on 50 subjects to examine how music affects the short-term memory of college students.

## **Justification**

The experiment on the effects of music on memory excerpts from the concept whether listening to the serene music that produce long wavelength affects the activities in our brain in conducting or carrying out a certain function.

There are a few researches saying that listening to harmonic and soothing music aids the memorization in human. This is because different frequencies or wavelengths have a certain effect on a person's consciousness.

Calm music soothes agitated thoughts and takes you to a place where everything is calm and peaceful. It has been proven to evoke physical responses from the body, by altering brainwave patterns and lowering blood pressure. Slow music has fewer beats per second than regular music, prompting our mind to slow down and match the more sedate pace, hence, our mind and body is more prone to receive and interpret what it is told to do, such as memorizing.

When designing this experiment, male and female is divided in two groups. This is to ensure that the experiment is conducted in a uniform way, and also to act as a control between male and female. Studies also show that male are comparatively smarter and intelligent than female and that is why in this experiment, we also divided the gender.

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The age is also a factor in the memorization in human. That is the reason why we fixed the age of the subjects within a range, which is 18 years old to 22 years old.

Our hypothesis is valid and testable, where we predict that when listening to calm and soothing song aids in memorization, whilst we also search for concrete reasoning and scientific factors to support the reason behind it.

While carrying out this experiment, we make sure that we are in an uninterrupted environment, such as a quiet room, peaceful garden and even a classroom.

Subjects are required to put on their headphones and adequate volume of baroque music, which is tuned at 60beats per minute, is played. Subjects are then given a sample of 30 items to memorize for 30 seconds.

After 30 seconds, music will be stopped and subject is required to write down everything that he or she could remember. Answers are not required to be in the correct order.

Following the basic steps will usually generate valid results, experiment are made clear.

## **Variables**

Manipulated: presence of music

Responding: number of correctly recalled items

Constant: types of music, sets of items to memorise

## **Methodology**

Fifty subjects who are within the range of 18 to 23 years old were chosen to be involved in the experiment conducted. The age range of subjects was established to minimize the possible effects of age on the results obtained. Out of the 50 subjects, 25 males and 25 females were chosen to also minimize the possible effects of gender on the results.

Subjects were first approached with a set (set 1) of 30 items listed in pictorial form, printed on an A4 paper. The subjects were asked to memorise them within 30 seconds. At the same time, earplug was provided to minimize the surrounding noise. In another word, experiment was conducted without any music or in silence. Response sheets were then distributed to the subjects to recall the names of these items.

Diagram 1: 30 items listed in pictorial form (set 1).

The experiment was then carried on by introducing the subjects “*Sonata in D Major for Two Pianos, K. 448: I. Allegro con spirito*” by Andras Schiff, tuned at 60 beats per minute. Music was first played for 30 seconds to relax the subjects’ mind before proceeding with the experiment. A pair of earphones was also provided to each subject to minimize the noise of the surrounding which may possibly affect the results.

A new set (set 2) of 30 items in pictorial form was then given to the subjects to memorise while the music was still playing and with their earphones on. Similar to the steps in the previous set, the subjects were given 30 seconds to memorise the items. Then, subjects were asked to recall these items and to write down in a piece of response sheet.

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Diagram 2: 30 items listed in pictorial form (set 2).

Response sheets returned by the subjects are then marked. The answers are marked according to the sets of items provided. The number of correctly recalled items is then recorded.

## **Results**

## **Results Discussion**

## **Conclusion**