Effects of Background Noise on Memory Recall

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Abstract

The reason for this study was to assess if background noise affected memory. There were a total of 60 participants recruited from the Evergreen Valley College campus ranging from ages 20-24. 30 of the participants were female and 30 of the participants were male. Each student was randomly assigned one of three conditions in a room by themselves. The three conditions were a radio that played a classical song with no speech, a radio that played noise recorded from the Evergreen Valley College cafeteria, or there was no radio so that it would be silent. Each participant was then given the same 30 flashcards to study for a total of four minutes. After the four minutes was up, the flashcards were taken from them and the background noise was turned off. The participants were then given a paper and pencil to write down as many words as they could remember. They were given a time limit of one minute to complete the task.
Effects of Background Noise on Memory

There are numerous studies about the effects of music with patients who have learning disabilities or brain diseases, with valid and steady results, however studies about the effects of music on people without any learning disabilities or brain diseases have been inconsistent. A study on background noise affecting memory recall could prove useful among college students whom are trying to find the most effective way to study. Studies have shown that music playing for Alzheimer's patients helped face-name recognition greatly improve (Carruth, 1997). Studies have also shown listening to music rather than background noise or silence gave dementia patients better memory recall (Larkin, 2001). Although the experiment is studying those without diseases such as Alzheimer's or Dimentia, this useful information helps in aiding the hypothesis that listening to music while studying or trying to memorize something could increase the chances of being able to recall that information at a later time.

Music is one of the three conditions of the experiment. Another condition is daily noise you might hear while trying to study in a school campus cafeteria or at home. The noises or sounds may include chatter, cars driving by, doors opening and closing, someone opening a bag of chips, etc. Studies have shown that if the noise is not overly distracting and at a low enough decibel level that noise can affect memory positively if it is a consistent part of the background. (Baker & Holding, 1993). Though, there are also studies that show memory recall being negatively affected by background noise when the information is brand new (Smith & Broadbent, 1981).

This experiment was derived to see if background noise had any effects on memory recall, especially among young college students who are trying to study in areas around school, work, library, or home, where the background noises may differ. Due to the differing background noises, three conditions were chosen from a classical song with no speech playing, silence, or noise recorded from the school cafeteria. The hypothesis is that the participants that studied while listening to the classical song with no speech would have a higher memory recall than those who had to sit in silence or listen to
the recording of the Evergreen Valley College cafeteria. The ending results of this experiment could change the way students study or maybe even change their learning environments.

**Method**

**Participants**

The participants for this experiment were selected at random from the Evergreen Valley College campus. There were a total of 60 participants where 30 were male and 30 were female. All participants' native language was English. The ages of the participants were from 20-24 years old. All of the participants were in their last semester of Evergreen Valley College with a two year degree and continuing their academic career by transferring to a four year college.

**Materials**

A standard radio that could playback a recorded cd was used. Two blank CDs were used in order to record the classical song and the noise recorded from the Evergreen Valley College cafeteria. Three identical sets of 30 flashcards with the same 30 vocabulary terms printed and dispersed randomly in each set. Three small rooms with no windows, one door, a desk and a chair. 60 pieces of paper and 10 pens. Three timers to keep track of the time limits. Three volunteers to help keep track of the time, play the recordings, and hand out the paper and pens. A waiting room large enough to seat 60 people with enough chairs.

**Procedures**

The 60 participants were asked to meet in the large waiting room where they were each randomly assigned a room. In groups of three, the participants walked over to the rooms and disbursed amongst the three different rooms depending upon which room they were assigned. Once the participants were in the room, the volunteers shut the door and asked the participant to sit down at the desk. The volunteer then gave the participant some brief instructions explaining that they would have four minutes to study 30 flashcards. The volunteers then let the participants know that they could start
studying the flashcards once they had started the timer and said the word, “start.” The volunteer further explained that once the four minutes were up that they would take away the flashcards and replace them with a piece of paper and pen. The participant was explained that they would then have one minute to write down as many words as they could remember from the pile of flashcards that they had studied. After being given the instructions, the volunteer handed the participant the 30 flashcards and depending on the room they were assigned to, meant the different condition that they were assigned to as well. The participants were unaware that they would be assigned to certain conditions. The participants that were assigned to the first room had the classical song, “Nocturne #2 in E Flat” by Frederic Chopin played while they were studying their flashcards. The participants that were assigned to the second room had the recording from the Evergreen Valley College cafeteria played for them while they were studying the flashcards. The participants assigned to the third room had no background noise, therefore studying the flashcards in silence. The background noise in the first and second room were kept at a lower volume as to be a part of the background noise. The volunteer then simultaneously started the timer and said, “start,” at the same time. Once the four minutes passed the volunteer said, “stop.” At this time the volunteer stopped playing the background noise and went over to the participant to collect the flashcards and handed the participant a piece of paper and a pen. The volunteer explained that once they started the timer and said, “start,” that the participant could start writing down the words. The volunteer then simultaneously started the timer and said, “start,” at the same time. Once the minute was up, the volunteer said, “stop,” and proceeded to collect the paper and pen from the participant. The volunteer then escorted the participant out of the room and called upon the next participant. This procedure went on until all 60 of the participants were able to go through and complete the tasks.
References


