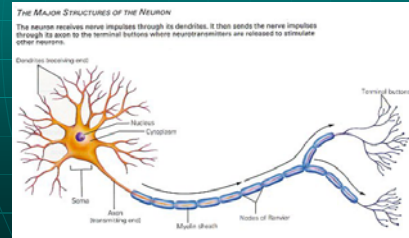


The Effects of Sound on Memory

By Alexander Grigorenko

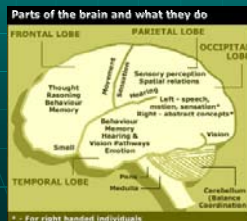
Introduction

- Information from outside stimuli gets to the brain with the help of neurons.
- Neurons are specialized cells that carry electrical signals into the brain.



Introduction, continued

- Sound travels in waves. Microscopic bones in the inner ear detect sound waves, and neurons carry the information about them into the cerebral cortex.
- Cerebral cortex, in the brain, identifies and processes sound information.



Introduction, continued

- Adrenaline affects human ability to retain information. Low levels lead to loss of interest in the subject, high – to anxiety. Moderate levels are best for retaining information.
- Adrenaline levels are affected by music.
- The purpose of this study was to find out whether it is better to study in the presence of sound or in silence.

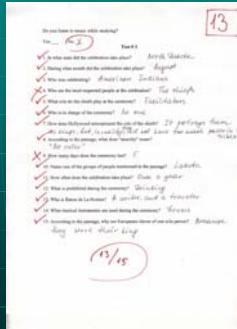
Hypothesis

- The type of sound will have a significant effect on the amount of retained information.
- The subjects will be able to retain more information in the absence of sound, less in the presence of rock music, and least in the presence of speech.
- Individuals who listen to music regularly while studying will not be affected by the presence of sound as much as those who do not.

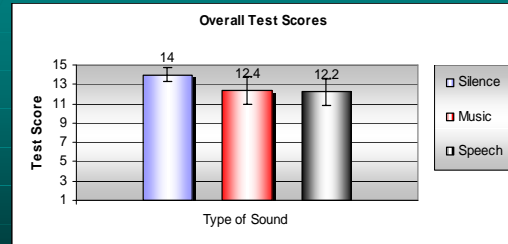
Methods

- Ten test subjects were selected. Five of them regularly listen to music while studying, five do not.
- Three reading passages of similar reading level were chosen.
- Passages were read to the subjects. One passage in silence, one with rock music playing, one with a news program on the radio.
- Test subjects were asked to answer fifteen questions following each passage.
- The number of correct answers was recorded.

Evidence

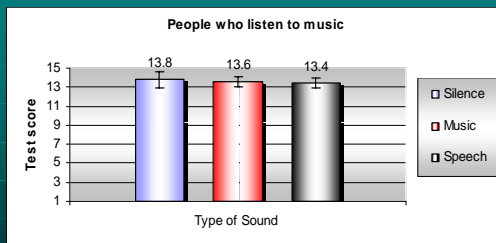


Results



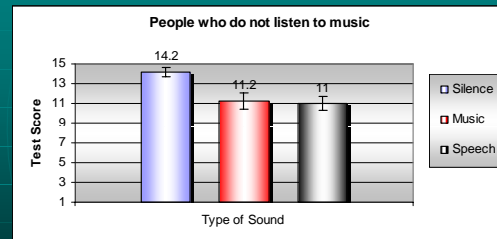
Test subjects scored lower in the presence of music and speech than in silence. However, test scores for music and speech do not vary as much as expected.

Results, continued



People who listen to music while studying had similar scores in all three categories.

Results, continued



People who do not listen to music while studying scored much lower in the presence of sound than they did in silence.

Conclusions

- The presence of sound has a significant effect on reading comprehension. People score better in the absence of sound.
- The type of sound does not seem to have a great effect on reading comprehension.
- Personal preferences determine the effect of sound on reading comprehension. People who are used to listening to music while studying are not disturbed by it as much as those who are not.
- Since more information can be retained in the absence of sound, it is better to study without music.

Future Studies

- In future studies I could examine if gender has any effects on test scores.
- I could compare different types of music.
- I could use more test subjects.
- I could spread out the testing. In my study, all of the tests were conducted on the same day, so by the end my test subjects could have gotten tired, which could have affected my results.