# **Materials**

+ Equipment needed to create the two videotapes:

We used a video camera, Sony iLink, Powerpoint, Adobe Premiere 5.1 (computer editing program), and VCR tapes

+ Blank questionnaires for test subjects

**Experiment/Procedure**

In order to test whether the hypothesis that the presence of music will help to stimulate the test subject thus improving his short term visual recollection, we have designed an experiment. In this experiment, the subjects were subjected to two videos and had an eleven question free-response quiz following the video.

Both videos were of the same three-and-a-half minute scene of a young man waking up and preparing himself for the day. We erased all of the sound on the videos and added “Ride of the Valkyries” as background music to one of the videos.

The eleven-question quiz included only questions that generally tested short-term visual recollection. For example, many of the questions focused on colors of objects and numbers of repetitions. This would ensure that our results focused more specifically on that which our hypothesis was targeted.

The control video was the video without background music. This video gave us results to compare with the results from the background music video. The experimental variable would be the background music.

First, we created the video. We filmed a scene that would have plenty of visuals and was a common day occurrence for our test subjects (getting ready for the day). We then edited the scene down to a reasonable length of three-and-a-half minutes and erased all sound. We then made two different copies of the scene. To one of these videos, we added background music (Wagner’s “Ride of the Valkyries”).

At the end of each video we created a PowerPoint presentation with eleven questions that the subjects would answer after seeing the video. Both videos had the same question presentation to further standardize the testing process. The following are the questions that we chose for the quiz:

1. Name three things that were in the hall.
2. How many socks was he wearing?
3. What cartoon character was on his slippers?
4. Name two posters that were hanging in his rec room.
5. What inflatable animal was playing air hockey?
6. How many times does he step on the stapler in the hall?
7. What part of the shaving process was left out?
8. How many tums did he eat?
9. What color is his shirt?
10. How many times did he shake the hair gel container?
11. What color was the top of his shaving gel container?

Secondly, we created the testing environments. We randomly selected ten teachers to ask if they would be willing to participate in the experiment for any of their classes. With minimal replies, we went ahead and gave randomly selected treatments (video with sound or video without sound) to each teacher that we had selected, in hopes that they could return the questionnaires.

Due to lack of funding and experimental space, we felt that a controlled enough environment would be in classrooms. Teachers would properly control the students who would serve as test subjects. They all had a similarly scattered view of the television set where the video would be played.

Finally, we collected all of the data and compared the results through statistical analysis.**Statistical Analysis**

From the tables in the “Data” section, we can clearly see the percentage of questions answered correctly following the video with no sound was 42.95%. The percent of questions answered correctly following the video with sound was 40.62%. The success percentage is greater from the video with no sound, but is it significantly larger? To determine this, we took our data and put it to the test. We put it to the “Two-Sample Proportions Z-Test” to be exact.

**The Two-Sample Proportions Z-Test:**

The data supports all requirements for using the “Two-Sample Proportions Z-Test”.

(n1p > 5; n2p > 5; n1(1-p) > 5; n2(1-p) > 5; population >10n)

Alpha-level = 0.05

Ho: p1 = p2; The proportion of correctly answered questions is the same from the data sets of both videos.

Ha: p1 < p2; The proportion of correctly answered questions from the data set of the video with background music is less than the proportion of correctly answered questions from the data set of the video without background music.

x1 = 236; n1 = 581; p1 = .4062; x2 = 515; n2 = 1199; p2 = .4295; p = (751/1780) = .4219

z = \_\_\_\_\_\_\_\_\_\_\_\_.4062 - .4295\_\_\_\_\_\_\_\_\_\_\_\_

square root [(.4219)(.5781)(1/581 + 1/1199)

z = -.93447

P = .175

Fail to reject the null hypothesis that the proportion of correctly answered questions is the same from the data sets of both videos. This sample would occur approximately 17.5% of the time. This is not statistically significant in accordance with the predetermined significance level of 0.05. Basically, the sets of data do not significantly show a difference between the proportions of correctly answered questions.

**Conclusion**

Our hypothesis that the presence of music will help to stimulate the test subject to improve his short-term visual recollection has not been proven by our experiment. In fact, the results seemed to make us believe that the presence of music actually diminished the performance of the test subject. This was proven not to be a significant difference through our statistical analysis of the data sets. Therefore, the only results that we can draw are that in this instance, music did not help stimulate the test subject to improve his short-term visual recollection.

We believe that the presence of music can stimulate the brain. Our experiment proves that the presence of music does not help stimulate short-term visual recollection. Recommendations

For those that wish to duplicate our experiment or wish to improve upon this idea, we would like to give you some recommendations and ideas.

In the duplication of our experiment, we would suggest the usage of a different music selection. It would also be interesting to collect a sample size of more than thirty for each gender under each category (no sound and with sound) so that analysis can be done between the genders.

If you wish to pursue the role of music in brain functions further by trying different avenues, we have a few paths. One would be the presence of music on those reading, for example SSR during class time. Others could be music during tests or during varying forms of entertainment.

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