**Introduction**

*“Perhaps all music, even the newest, is not so much something discovered as something that re-emerges from where it lay buried in the memory, inaudible as a melody cut in a disc of flesh. A composer lets me hear a song that has always been shut up silent within me.”*

*--Jean Genet*

Beginning in 1995 researchers led by Dr. Gordon Shaw, from the University of California at Irvine, began exploring the effects of music on human intelligence. These studies would give rise to what is known as the “Mozart Effect:”. For the purposes of their experiment the researchers took a number of college age students and played for them a ten minute selection of Mozart’s Sonata for Two Pianos in D Major (K 448); a second group was placed in a silent room for 10 minutes. The test subjects were then administered an I.Q. test. Of those sampled the group who listened to the ten minutes of Mozart scored higher on their I.Q. tests then those who were given ten minutes of silence. Although Shaw’s studies have been heavily rebuffed by his peers this “Mozart Effect” has led to a series of CD’s and books which accompany a New Age attempt to better oneself through music.

The results of Shaw’s experiment opened the doors of inquiry to the effects of music over other neurological functions. One such branch from this research has been the inclusion of experiments relating to memory. Comparatively little is known about how memory in humans work. At best scientists are able to guess the approximate regions of the brain used to store the three different types of memories. Immediate recall, the ability to repeat words and numbers immediately after hearing them, is located in the auditory associative cortex; short term memory is thought to be located in the deep temporal lobe while long term memory is thought to involve exchanges between several parts of the brain. Short and long term memories, while located in different regions of the brain are thought to use a similar encoding scheme for memories. These encoding patterns are what prompted researchers to expand their research with music to test memory as well.

Studies into memory have shown that the context in which an event takes place impacts the memory. Accordingly some of the first studies in this area involved the use of music as a context for the memories. Steven M. Smith of Texas A&M performed research in this area when he tested the effect of instrumental context clues on memory. In conducting his experiment Mr. Smith gave his subjects a list of words to study while music (either a Mozart Concierto (K491 in c), a jazz selection ("People Make the World Go Around" by Milt Jackson)) played in the background. A third group studied the words in silence. Two days later the subjects were asked to remember as many of the words as possible. When answering the subjects were divided into groups once again and placed in an atmosphere with the three respective musical elements. Smith’s research indicated that those who were tested with under the same conditions with music both times remember more words then the those who were exposed to silence or two different types of music.

These two experiments have heavily influenced our decision to conduct this research project. While Smith’s experiment seems to indicate that a connection exists between music and short term memory there is no evidence indicating whether music will also effect immediate recall and memory over a shorter period of time.

*"Music is the shorthand of emotion."*

*-- Leo Tolstoy*

In order to be assured that the videos were identical with the sole exception of the presence of music the original footage was exported to computer where it was digitally edited with all noise and sound from the original tape deleted. The music, Richard Wagner’s Ride of the Valkyries, was then digitally inserted onto the video and copies were made.

A principal argument used to explain the success of Shaw and Smith’s tests was that the complexity of Mozart’s music helped to “encode” the memories into the minds of those observed. It is for this reason that we chose Richard Wagner’s Ride of the Valkyries to overlap the video. Wagner’s music is widely regarded as having a complex structure. It is widely believed that Wagner reinvented the Opera through his use of this complex architecture and harmony. Derek Watson a biographer of Wagner compared the structure of his music to that of Johann Sebastian Bach and Ludwig van Beethoven.

*In memory everything seems to happen to music.*

*--Tennessee Williams*

**Hypothesis -** The presence of music will help to stimulate the test subject thus improving his short term visual recollection.

**Prediction –** We predict that if two test groups are displayed a video (one video containing music and the other containing no sound) then the group where music was present will respond by being able to recall more specific details.