



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Supriya A. Bhupathy	Project Number J0605
Project Title Left Brain, Right Brain: Does Handedness Affect Memory?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this study is to determine whether or not there is a difference in the short-term memory of left-handed and right-handed girls in grades five through nine in order to learn more about brain function. The hypothesis states that the collected data will reveal that there is no significant difference between these two groups.</p> <p>Methods/Materials The materials used were eighteen 4 x 7 note cards (six flashcards with nine numbers on each, six with nine letters on each, and six with nine words on each), Test Subject Answer Sheet, Score Sheet, and a stopwatch. The test subjects were given 10 seconds to memorize data on each flashcard, one by one, and another ten seconds to write down the data they recalled. The answer sheet was graded and the data was recorded. The manipulated variable was handedness, the controlled variables were that all the subjects were girls and in grades 5-9, and the responding variable was the score on the test. A total of twenty-two sets of data were collected and used for the analysis, eleven for each group.</p> <p>Results The total scores (out of 162) on all 18 note cards for the eleven left-handed subjects were as follows: 97, 130, 93, 103, 112, 97, 109, 88, 72, 99, and 105. The total scores on the same test for the eleven right-handed subjects were as follows: 114, 110, 119, 109, 114, 116, 105, 119, 104, 132, and 109. The mean for the left-handed test subjects was approximately 100.45 +/- 29.34 with a variance of 215.27. The mean for the right-handed test subjects was approximately 113.73 +/- 15.8 with a variance of 62.42. The unpaired t-test showed that there was a significant difference between the two means with a 95% confidence interval, which means that the right-handers did significantly better on the memory tests.</p> <p>Conclusions/Discussion Statistical analysis of the means showed a significant difference in the memory of left-handed and right-handed girls in grades five through nine, with memory being better in right-handers. However, the results are inconclusive because normal distribution could not be shown with the small number of subjects and there was a large variance. This made the t-test less reliable. There were also individual factors (such as grade and motivation) and environmental factors (such as location of testing) to consider. For these reasons, the hypothesis can neither be proven nor disproved at this time.</p>	
Summary Statement By doing this project, I attempted to determine if there is a significant difference in the short-term memory of left-handed and right-handed girls.	
Help Received Science teacher, Mr. Cornell, helped in statistical analysis; parents helped in recruiting test subjects; mother proofread report.	