



CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

Name(s) Sarah N. Chay	Project Number J0710
Project Title Lying Is Hard Work!	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my experiment was to answer the question: can you predict whether a person is lying or not, based on how fast she answers 10 questions while performing a simple physical task? I hypothesized that if a person is lying, her brain would have to work harder, and therefore she would take longer to answer all the questions than if she were telling the truth.</p> <p>Methods/Materials To perform this experiment, I enlisted 20 volunteers (all 12-13 year old girls) as test subjects. The volunteers were divided into two groups of 10 subjects each. One group was assigned to be the lying group, while the other was assigned as the truth-telling group. A questionnaire was developed consisting of 10 simple questions. Each test subject was instructed to stack (and re-stack) 10 plastic cups while answering the 10 questions in the questionnaire. Subjects were timed from the moment the first question was asked until the last question was answered. Each test subject was randomly assigned a unique identifier. Subjects in the truth-telling group were assigned A-1 to J-1, while subjects in the lying group were assigned A-2 to J-2. Subjects with the same identifying letter were paired together to compare their measured times (for example, A-1 with A-2, etc.)</p> <p>Results Nine of the ten subjects (90 percent) of the lying group took a longer timer to answer the questionnaire while stacking cups. Only one subject (10 percent) from the lying group answered the questions faster than her paired subject from the truth-telling group. As a group, the subjects who lied took an average of 5.28 seconds longer to answer the questions than the subjects in the truth-telling group.</p> <p>Conclusions/Discussion The data showed that, except for one pair of subjects, members of the lying group took an average of about five seconds longer to answer all the questions than members of the truth-telling group. I concluded that this supported my hypothesis, and therefore I attained my objective for the experiment. The information from this experiment will help us better understand the brain and how it works. It may help find different uses for fMRI scans, which may lead to a new and improved system of lie detection tests. It could also be a step to the development of a new lie detector in the future.</p>	
Summary Statement When a person is lying, her brain has to work harder than when telling the truth, thereby slowing down her response time.	
Help Received Dad helped edit for grammar and spelling. Mom helped with board ideas and experimentation.	