

## Statistics Project—Lie Detection

There are law enforcement consultants that claim to be able to tell if someone is lying or not. This experiment attempts to verify lie detection ability.

Experiment Outline: Recruit subjects that may have a reputation for lie detection—police officers, serious poker players, psychiatric counselors, etc. Recruit performers randomly, i.e. without regard for deception abilities. For each detector (D)—performer (P) pair run the following test: Put them across from each other in a room with the test administrator (A). They play twenty rounds of the following game: A starts by dealing two cards to P, one from a red deck and one from a blue deck. P keeps both cards hidden from D and A. If the red deck card is a heart or a diamond then P lies about the identity of the blue deck card. Otherwise P tells D the identity of the blue deck card. D marks his tally sheet with lie or truth. A marks down P's statement and D's evaluation of Lie/Truth. P puts both cards on top of the discard pile. They then proceed to the next round. At the end A will compare the sequence of red deck cards with D's evaluation to get a score for that particular D/A pair. A should also verify that P did lie at the correct times.

Things to include in your report: Identify the null hypothesis. Identify the distribution for the null hypothesis. Identify what a statistically significant score would be. If any of the D's exhibited a statistically significant score retest them with a new group of P's.

Experimental Setup Cautions: Make sure that P is attempting to be successful with his/her lying. Control carefully for aspects of the D/P interface, especially things like P wearing sunglasses, P refusing to face D, etc.

Extra credit variation:

Run the experiment again but this time let P decide whether or not to lie on each card. .

Report Writing Cautions: Be sure you thoroughly describe the experiment/study to the reader. Remember you are writing this report for the general reader not specifically for your teacher. Try to address any objections that the reader might bring up. Your report should be in a prose format. Be sure to use complete sentences, proper grammar, correct spelling, understandable statements, etc. Clarity of your concepts and presentation is important. If your English composition skills are not so good then make sure that someone in your group with good composition skills goes through your document carefully. If you have extensive tables and graphs consider putting them in an appendix.