

You may work with one other person on this assignment, submitting one report with both names, provided that both of you contribute substantially to the work.

***Praising Intelligence or Effort?***

Psychologists investigated whether praising a child's intelligence, rather than praising his/her effort, tends to negative consequences such as undermining their motivation (Mueller and Dweck, 1998). Children participating in the study were given a set of problems to solve. After the first set of problems, half of the children were randomly assigned to be praised for their intelligence, while the other half was praised for their effort. The children were then given another set of problems to solve and later told how many they got right. They were then asked to write a report about the problems for other children to read, including information about how many they got right. Some of the children misrepresented (i.e., lied about) how many they got right, as shown in the following table:

	Praised for intelligence	Praised for effort	Total
Misrepresented their score (lied)	11	4	15
Did not misrepresent (did not lie)	18	26	44
Total	29	30	59

- a) Identify the explanatory and response variables in this study.
- b) For each group, determine the proportion who lied, and identify them with appropriate symbols.
- c) Describe how you could use index cards to conduct a simulation analysis for determining whether the difference between these proportions is statistically significant. Include the following information in your description:
  - i) how many cards you would use
  - ii) how many would be marked how
  - iii) how many you would deal out
  - iv) which kinds of cards you would count
  - v) what you would compare the results to, after you conducted a large number of repetitions
- d) Use the "Two-Way Table Simulation" applet to conduct a simulation with 1000 repetitions. Submit a screen capture of the resulting histogram, and report the empirical p-value from the applet.
- e) Use R or Minitab to perform Fisher's exact test. Along with reporting the p-value, provide an appropriate graph, and also express the p-value as  $\Pr(X \text{ \_\_\_\_ } k)$ , where you:
  - i) insert the appropriate inequality in the \\_\\_\\_\\_ space
  - ii) report the appropriate value of  $k$
  - iii) indicate what kind of probability distribution  $X$  has
  - iv) provide the numerical values associated with that probability distribution

f) Provide a complete, detailed interpretation (in one or two sentences) of what this p-value means in this context (i.e., what is it the probability of, assuming what?)

g) Based on this p-value, is the observed difference between the groups statistically significant at the  $\alpha = .05$  level? Explain how you know.

h) Summarize your conclusion about whether the data provide evidence that praising a child's intelligence leads to more negative consequences than praising his/her effort.