Example 3-7: Memory Study
You will be asked to study a sequence of letters for 20 seconds and then to write down as many as you can remember, in order. Your score will be the number that you remember correctly before your first error of any kind.

a) Is this an observational study or an experiment? Explain.

b) Identify the explanatory and response variables.

c) How was the assignment of treatments to subjects carried out? How is this relevant to the issue of confounding variables?

d) How did this study control for the concern that some students are better memorizers than others?

e) Put a dot on graph on the board corresponding to your result. Do the graphs suggest that the two “treatment” groups tended to produce different responses? Explain.

f) If further analysis reveals that the differences between the two groups are “statistically significant,” meaning that they are unlikely to occur by random variation if there were no underlying difference between the groups, would you have reason to conclude that one treatment caused lower/higher performance on the task? Explain.