**Experiment or Correlation? KEY**

From: <http://psych.wisc.edu/braun/281/Research/Research.html>

**1.  A newspaper headline reads, Heavy Drinkers Get Lower College Grades. What would you conclude from this headline? What type of study was this based on?**

 This study was most likely correlational because an experiment would not be ethical. (In order to do an experiment, the researcher would have to control the students' drinking, forcing some students to drink heavily and then observing the effects of the drinking on their grades.) All we can conclude from the headline is that heavy drinking is **associated** with lower grades. We cannot conclude that drinking caused the lower grades because other plausible interpretations have not been ruled out. (Perhaps students drink more because they make lower grades. Or perhaps drinking and grades appear related only because they are both related to the degree of student commitment to being in school.)

**2.   People remember concrete words better than abstract ones. Could this finding have come from an experiment? Would it be reasonable to infer that concreteness facilitates memory?**

Yes. An experiment could have been set up in two different ways. In one, called a between-subjects design, people are randomly assigned to groups. One group learns concrete words; the other learns abstract ones to see whether the group learning concrete words remembers more. In another experimental design, called a within-subjects design, all participants learn both the concrete and abstract words to see whether individuals learn concrete words better than abstract ones. (Of course, the order in which people learn the words would have to be controlled using a procedure called counterbalancing.

However, the two groups of words (concrete versus abstract) will probably also vary in others respects (such as word frequency). I.e., there are probably confounds, and hence, it is difficult to infer that concreteness alone facilitates memory.

**3. Are people who were abused as children more likely than others to become child abusers? What type of study would be used to research this question?**

 This question can only be addressed by correlational studies. (In order to do an experiment, the researcher would have to randomly assign some children to a group that gets abused; others to a group that does not get abused. Obviously, this cannot be done!) Thus, we must be cautious about assuming the cause of any association between experiencing abuse as a child and perpetrating it as an adult. Correlational studies do not support one interpretation over others.

**4.  A health magazine reports that depressed people who continue medication for at least six months are less likely to relapse than are people who take medication for less than six months. What would you need to know about the design of this study, in order to interpret the report?**

Enough information to see whether it was a correlational study or an experiment. In a correlational study, the researcher would take advantage of the fact that some depressed people stay on medication longer than others. (The researcher does not control how long people are on medication). Suppose the researcher finds that people on medication more than six months are less likely to relapse. The researcher cannot conclude that the increased time on medication improved the relapse rate because other explanations have not been ruled out. (Perhaps people who stay on medication longer differ from the others in ways that would protect them from relapse. Maybe the people on medication longer are also more likely to receive psychotherapy.)
In an experimental study, the researcher controls how long people stay on medication. Half of a sample of depressed people is randomly chosen to receive medication for less than six months; the others receive medication for more than six months. The only way the two groups differ is in the duration of the medication.

**5.  A private school advertises that a group of their students recently scored 10 points higher on a math test than a group of other students from a public school? What can you conclude from this advertisment? Is this an example of an experiment?**

 We cannot conclude anything about the cause of the difference in scores between the two groups. This is not an experiment because the researcher did not control group membership to ensure that the groups were roughly equivalent when they started school. (Imagine the reaction of parents if the researcher randomly assigned some children to attend private school and others to go to public school.). It is a **quasi-experiment** (resembles an experiment because it compares groups, but is not an experiment because the researcher did not control group membership) and should be interpreted like a correlational study. We cannot conclude that private school caused students to score higher on the math test. (Perhaps the students from private school are more likely to practice math on computer at home and it is this home activity, rather than experiences at school, that leads to the higher math scores.)