

22. Learning Check—Experimental Designs

1. A psychologist is interested in the effect of peer pressure on risk-taking behaviors of college students. The psychologist designs an experiment to determine this effect where 200 students (who volunteer to serve as participants) are randomly placed in one of two situations. In each situation, five participants sit in a room with four other people. The four other people are actually confederates of the experimenter (i.e., they are part of the experiment), and their behavior is determined before the experiment begins. Half of the participants witness the four other people in the room leaning back in their chairs (a behavior that involves the minor risk of falling over backward in the chair). The other half of the participants also witness the four confederates leaning back in their chairs but are further encouraged by the confederates to exhibit the same behavior (e.g., they tell the subjects that leaning back is more comfortable, fun). The behavior of each participant is observed to determine whether they do or do not lean back in their chair during the experiment. For each group, the number of participants (out of five) who lean back in their chairs is recorded.

- a. List any independent variables in this study and the levels of each one.
- b. What is the dependent variable, and how is it being measured?
- c. What type of experimental design is this (e.g., bivalent, multivalent, or factorial)?

2. Explain why an experiment typically has higher internal validity but lower external validity than other research methods.

3. A research methods instructor wants to know if having students conduct their own research study as part of the course increases their understanding of major concepts in the course. To investigate this, she gives two sections of her course a pretest on the course concepts. She then gives one section a research study assignment for the course but does not give this assignment to her other section. At the end of the semester, she gives a posttest to both sections on the course concepts and compares the difference in the pretest-posttest scores as a measure of learning for the two sections of her course. The section with the research study assignment shows more learning. Explain why the instructor cannot be sure that the research study assignment *caused* more learning in this study.