Confounding Variables

Answer the same four questions for each of the experiments described below. Hint: One of the selections contain no confounds.

1. Identify the independent variable(s) 2. Identify the dependent variable(s). 3. Identify any confounding variable(s). 4. Propose a method to "unconfound" the experiment.

Confound selection 1:

Tom Rogers wanted to test a new "singalong" method to teach math to fourth graders (e.g., "I love to multiply" to the tune of "God Bless America"). He used the singalong method in his first period class. His sixth period students continued solving math problems with the old method. At the end of the term, Mr. Rogers found that the first period class scored significantly lower than the sixth period class on a mathematics achievement test. He concluded that the singalong method was a total failure.

Confound selection 2:

An airport administrator investigated the attention spans of air traffic controllers to determine how many incoming flights the average controller can coordinate at the same time. Each randomly selected controller was tested, without his or her knowledge, by a computer program that fed false flight information to a computer terminal. The controller first "received" information from one plane, and by the end of an hour the controller was coordinating 10 planes simultaneously. The administrator analyzed the errors collected by the computer program. The analysis revealed that the maximum number of planes a controller could handle without making potentially fatal errors was six planes. Also, no errors occurred when only one to three planes were incoming. He concluded that a controller should never coordinate more than six incoming flights.

Confound selection 3:

A drug company developed a new medication to control the manic phase of bipolar manic-depression. The firm hired a hospital psychiatrist to test the effectiveness of the drug. He identified a group of manic-depressive patients and randomly assigned them to a drug or placebo group. Nurse Ratched was told to administer the drug and Nurse Johnson was told to administer the placebo. Each nurse made daily observations of her patients during treatment. A month later the observations were compared. In general, patients in the drug group had behaved more "normally" than patients in the placebo group. The drug company publicized its product's effectiveness.

Confound selection 4:

Dr. Goodrich wanted to demonstrate that his tires were better than those of his competitor, Dr. Goodyear. From car registration and leasing records, he found 40 salespeople who drove the same model of automobile approximately the same number of miles per week. Anonymously, Dr. Goodrich hired an independent research assistant, who was unaware of the purpose of the

study, to randomly assign to 20 of the salespeople a new set of unmarked Goodrich tires, and to the other 20 a new set of unmarked Goodyear tires of the same price and quality. After six months and an average of 15,000 miles traveled by both groups, the assistant arranged for the salespeople to exchange tires. After another six months, and similar mileage, the assistant measured the amount of tread wear and reported that the Goodrich tires had actually worn more than the Goodyear tires.

Confound selection 5:

An investigator was interested in studying the effect of taking a course in child development upon attitudes toward childrearing. At the end of the semester, the researcher distributed a questionnaire to students who had taken the child development course. Questionnaires were also given to an equal number of students who had not taken the course. The students who had taken the child development course had different attitudes from the students who had not taken the course (e.g., they had more positive attitudes about having large families).