**Prep-Guide #4**

Based on Heath ch. 8

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DUE:** 2/22/22 by 9:00 a.m.

**Directions:** Please type your answers below each question. Please leave the question in the document. *Do use your own words*. Recall, we are not as interested in the correct answer as we are in the effort and thoroughness of your attempt. Still, please try your best.

**1.** What is the primary difference between a between-subjects design and a within-subjects design?

**2.** Discuss the following: “Extraneous variables influence the difference *between* groups.” Next, what does it mean to say that an experiment is confounded? How does this affect our ability to make cause-and-effect statements about the IV and DV?

**3.** Garwood, Cox, Kaplan, Wasserman and Sulzer (1980) presented participants with six photos, prejudged equivalent in physical attractiveness, and were asked to select a beauty queen. Half the photographs were labeled with a “desirable” first name and half were assigned an “undesirable” first name. All participants viewed all six photos and voted for their choice.

A. Name the independent variable and its levels.

B. Name the dependent variable.

C. Was this independent variable presented within-subjects or between-subjects?

D. Depending upon your answer to C above, what is the main thing the researcher must do to exert control?

**4.** You want to choose the variable or variables that you expect to be sensitive to your independent variable manipulation. What does this mean? What can you do to make a DV “sensitive” to your IV?

**5.** Your friend reads about Latané and Darley’s helping behavior study described in your text on p. 193 in which people were randomly assigned to be in a room to fill out surveys with no one, two other non-reacting people, or two naïve participants. Then the room began to fill with smoke. They measured how many participants in each condition left to report the smoke and found that those working alone were much more likely to report the smoke compared to those in the rooms with others. Your friend says, “Maybe the people who were doing the questionnaires by themselves were just more helpful people, and that’s why they helped more.” What kind of validity would your friend be addressing? Is her criticism appropriate – why or why not?

**6.** In the three descriptions of studies below, two contain internal validity problems (confounds.) One does not. For the two with confounds, identify what they are and then describe how you could change the study to eliminate the confound(s). For the one without a confound, simply identify the design type (between or within subjects) and indicate, “no confound present.” NOTE. The examples are lengthy, but you could answer each one in a single sentence or two.

A. Dr. Scarpulla wants to test the effectiveness of an intervention to increase awareness of the environmental impact of disposable water bottles. The initiative involves asking students to use a smartphone to track the number of disposable water bottles they use, categorizing whether they reuse them, throw them away, or recycle them. Dr. Scarpulla asks for volunteers in a large geology course. Students must own a smartphone in order to participate in the intervention group. Fifty volunteers who owned a smartphone were assigned to the tracking condition (they downloaded a free smartphone app for this purpose). Fifty more students who were interested, but who did not own a smartphone, made up the comparison group. This group was simply exposed to a short video on the impact of plastic water bottles. At the end of a two-week period during which the students in the smartphone group tracked their water bottle use, Dr. Scarpulla found that students in the tracking program were more likely to have purchased a reusable water bottle in the past week compared with the students in the comparison group. She concluded that her smartphone tracking program raised awareness, causing students to purchase reusable bottles.

B. Dr. Green, a cognitive psychologist, believes that people learn better when they spread out their studying over several days, so she creates a study with three groups of participants. Each group studies the same list of 120 Chinese vocabulary words (none of the participants had studied Chinese). One group studies the words for 20 minutes on the first day. The second group studies the words for 20 minutes on the first and second days. The last group studies the words for 20 minutes on the first, second, and third days. On the fourth day, all of the participants are tested on how well they have learned the Chinese vocabulary words. The people in the last group scored the best, so Dr. Green concludes that distributed studying does improve people’s ability to learn.

C. Dr. Underwood, a human factors psychologist, is comparing visibility features for automobiles. (Human factors psychologists study how humans interact with the material world.) She plans to test whether drivers will avoid obstacles behind their cars more effectively when the car is equipped with an enhanced rearview mirror, a rear video camera system, or an object detector that sets off a buzzer alarm. She places a sample of 25 drivers into each of three cars. The cars are identical except for their object detectors. The drivers spend 1 hour familiarizing themselves with their vehicles and their object detectors by running through a set of drills on a closed driver’s course. During a test phase, the researcher places a set of objects behind each driver. The test objects range in height, color, and movement. Each driver attempts to back up his or her car while avoiding the test objects. Each object is presented three times. Dr. Underwood finds that, on average, drivers respond more accurately to the rear camera video system compared to the rearview mirror or the buzzer alarm.

7. What are ceiling and floor effects and what can be done to avoid them? If they are present in your study, what validity do they most harm? Next, discuss what a manipulation check does and speculate on when you may need to use them and when you may NOT need them.