Learning Guide: Random (Probability) Sampling

1. Are all probability samples random samples? Why or why not?

2. Are all random samples probability samples?

3. It is true that very strictly speaking, if even one person you selected for a sample refuses to participate, you no longer have a probability sample. If so, why?

4. Which of the following constitute “non-response”?
   a. You are unable to contact someone who was randomly selected
   b. Someone declines to participate
   c. Someone refuses to sign the informed consent statement
   d. Someone starts to complete your on-line questionnaire (note, not survey), but stops answering questions at question number 13 out of 20 questions
   e. Someone starts to complete your on-line questionnaire, but stops answering questions at question number 7 out of 20 questions

5. Why is non-response (nonresponse bias) a threat to your ability to generalize the conclusions you reach in a research project? Why doesn’t replacement solve remove the threat?

6. What is the difference between coverage bias and selection bias? Assume you want to conduct a study to examine the impact of participation youth groups engaged in community service during high school on academic achievement in four-year colleges and universities. Think about coverage bias and EPSEM (equal probability selection method) as you answer these questions.
   a. Would UF be a good place to conduct this study? Why or why not?
   b. Assume you decide to conduct the study with UF undergraduate students. UF student records indicate participation in youth organizations. The registrar has offered to provide a list of randomly selected e-mail addresses of students who reported that they belonged to a youth organization in high school. Which would be better – to use the list of students offered by the registrar’s office or to ask the registrar to send a randomly selected list of UF students as a whole?

7. In reality, we live with less than perfect probability samples all the time. Your job as a researcher and as a reader of research reports is to decide what constitutes a sample that is “good enough” to convince you that the conclusions drawn based on a study can be generalized. What will you look for in descriptions of sampling procedures to convince you that an author can produce valid (warranted) conclusions and generalize those conclusions to the population of interest?

8. What is effect size?

9. What is the difference between effect size and significance level?

10. What role does effect size play in determining (1) sample size and (2) generalizing conclusions?
11. Which of the three threats to generalization does effect size address — non-sampling error, sampling error (variance), or bias?

12. How do you know what effect size you need for a result to be both statistically significant and meaningful?

13.