Post-lecture Notes III.3 – External Validity (mostly sampling issues)

Study Questions

What is the main difference between how we approach external validity and how we approached the other three types of validity?

What is convenience sampling and what are its advantages and disadvantages?

What is simple random sampling?

What is proportional stratified random sampling?

How can non-proportional sampling be used to "correct" for a problem in the accessible population?

What is cluster sampling?

How do psychologists typically approach the problem of context specificity?

1. Sampling in a way that forces the sizes of groups in the sample to be equal to each other, regardless of the sizes of the groups in the population, is _____ .
   (A) convenience sampling"
   (B) proportional stratified random sampling
   (C) quota sampling
   (D) never done

2. Fancy and complicated versions of sampling _____ .
   (A) should always be used
   (B) only need to be used when you plan to publish the results
   (C) only need to be used when the results might depend on the specific subjects
   (D) should never be used

Answers to Study Questions

For the other three types of validity, we identified the threats and attempted to minimize the threats by doing things like using random assignment, counter-balancing order, validating the measure in advance, and checking to make sure that our data do not violate any (statistical) assumptions. In the case of external validity, we take an almost opposite approach: we attempt to make this type of validity unnecessary by studying the people in which we are interested in the situations in which we are interested. In other words, instead of making sure that our results will generalize to other situations, we avoid having to generalize at all by studying the situations that we care about. There are exceptions to this, such as when we pre-validate the use of an animal model (which is more like how we approach construct validity), but there's a definite pattern of trying to reduce the need for external validity, as opposed to increasing the amount that we have.

Convenient sampling – as the name suggests – is getting your subjects from where-ever it is easy. The advantage is that it is easy. The disadvantage is that convenient samples are rarely representative samples of your target population.

Simple random sampling is when everyone has a definable chance of being sampled (i.e., you have a list of all possible subjects), but you don't do anything special to ensure that sub-groups within the population are correctly represented. The general idea is that the mere fact that you have had yourself aware of the different types of people (and how many there are of each) will help you to avoid being (too) biased and ending up with an unrepresentative sample.

Proportional stratified random sampling is when you force the proportions of subjects from each sub-group or type of person in the sample to match the proportions for those sub-groups or types in the target population.

Assume an accessible population that doesn't match the target population. For example, there are way too many 18-21 year-olds in the Elementary Psych Pool for it to be representative of Iowans (or Americans or humans) in general. You can try to correct for this by purposefully over-sampling people older than 21 from the Elem Psych Pool, to get the sample percents closer to the target values. This is, in a way, a case of two wrongs making a right. Your accessible population was biased and your method of sampling from it was biased, but the combination turns out to be closer to unbiased.

Cluster sampling is when you take advantage of people being conveniently pre-grouped on some irrelevant attribute. (Note: it must be irrelevant.) Then, instead of sampling everyone, you only need to sample a few of the pre-existing groups – which are called "clusters" – to get a representative sample of everyone. Examples include sampling only some counties in a state or only some classes at a school.

Psychologists approach context specificity by, in effect, admitting that there's nothing that can be done to fight this. So we study people in the contexts in which we are interested (and avoid generalizing to other contexts). Note that we don't use a variety of contexts in a given study (which would parallel the use of a variety of people). We usually study only one context at a time.

1. Sampling in a way that forces the sizes of groups in the sample to be equal to each other is called "quota sampling." 2. Fancy and complicated versions of sampling only need to be used when the results might depend on the specific subjects.