Pre-lecture Notes III.3 – External Validity

Experiments are a very straight-forward way of testing whether one variable has a causal influence on another variable. In brief, you manipulate the potential cause of interest – while holding everything else either constant or equal on average – and look for a change in the effect of interest. If you find a change and (a) you really did have a high level of internal validity, plus (b) you also had statistical conclusion validity, then you have provided strong evidence of a causal connection between the cause and effect variables.

But there are many situations where it would be either impossible or unethical to manipulate the potential cause of interest. To stick with an example that we've used before: if you wanted to study the relationship between serious (i.e., clinical) levels of anxiety and depression, it would probably be considered unethical to actually manipulate the subjects' amounts of anxiety. Yes, it would be OK to examine the possible causal links between anxiety and depression at low levels of each – for example, you could make the subjects somewhat nervous by randomly assigning them to a condition where they'd be asked to give a speech in public or private – but you could not assign people to a condition where they would be likely to suffer from something like PTSD (post-traumatic stress disorder) or expose people with a serious phobia to the object of which they're afraid. So a different approach from experiments must be used.

A correlational study provides you with information about relationships between variables without using any manipulations. (Some people call them "natural experiments" on the grounds that you are allowing nature to do the manipulating for you.) In a correlational study you take advantage of the fact that the variables in which you are interested vary across people – after all, that's why they're called variables, instead of constants; because they vary. You don't manipulate anything. Rather, you measure both variables (almost always at about the same time) in a variety of subjects and look for a statistical relationship between the two (usually a plain correlation, hence the name: correlational study).

For example, if you believe that anxiety causes depression, then you must predict that people high in anxiety will also be high in depression. If you observe this pattern of data, then your theory survives (and/or your confidence in your theory might increase); if you don't find this pattern, then your theory is falsified (and must be thrown out or, at a minimum, "tweaked" in some way).

Not only do correlational studies have the advantage over experiments in that almost any pair of variables can be examined – i.e., this approach has many fewer ethical constraints – but correlational studies are often much easier to conduct than experiments. Most of all, you don't need to come up with a clean manipulation of the potential cause of interest. You only need validated measures of the two variables in which you're interested and off you go.

Another advantage of correlational studies involves the fourth (and final) type of validity:

> External Validity – *the extent to which the results (from an experiment or study) (and, therefore, the conclusions) will generalize to other situations (i.e., other people, places, and times)*

Note how external validity concerns the entire experiment or study as a whole. This contrasts with construct validity, for example, which only concerns the measure(s) being used. It also contrasts with

internal validity, which really only concerns the independent variable (and making sure that nothing is correlated with it). External validity concerns the entire package, all at once.

Note also that when we say that external validity is the extent to which the results will generalize to other situations, we don't just mean other people. We also mean other places and times, which would include anything from other cultures to other times of the day.

The reason that external validity is coming up now is that it is (arguably) the greatest advantage of correlational studies over experiments. Because correlational studies do not involve manipulations, they do not have to be "set up." This means that they are often not conducted in the lab, but involve the observation of people in everyday settings. If your goal is to understand the things that make people behave in certain ways in "real life," then it would seem to be an advantage to collect your data in situations that are closer to "real life." Many correlational studies do exactly this.