Post-lecture Notes II.6 – Other Threats to Interval Validity

Study Questions

What is experimenter bias (in general) and why does it threaten internal validity?

When does experimenter bias occur?

What's the best way to reduce or eliminate the possibility of experimenter bias? What are some back-up options?

What's the main type of participant bias that is a threat to internal validity?

What's the other main type of participant bias and what kind of validity does it threaten (the most)?

What's the best way to reduce the type of participant bias that threatens internal validity?

What's the best way to reduce the other type of participant bias?

1. All threats to internal validity are due to some type of _____ .
    (A) confounding
    (B) lack of specificity in the measure
    (C) lack of exhaustiveness in the measure
    (D) violation of one or more statistical assumptions

2. Experimenter bias _____ .
    (A) can occur when the subjects are run in the experiment
    (B) can occur when the data are recorded
    (C) can occur when the data are pre-processed or analyzed
    (D) *all of the above*

Answers to Study Questions

Experimenter bias is (said to occur) when the beliefs or expectancies of the experimenter somehow end up influencing the results. It's a threat to internal validity because it's a confound – the experimenter behaves differently when running (or analyzing) the different conditions.

Experimenter bias can occur at either (or both) of two times: while the experiment is being conducted (e.g., when the behavior of the experimenter who is interacting with the subjects is different across the conditions or when the experimenter is coding the behavior of the subjects) and/or while the data are being pre-processed (e.g., when the experimenter uses different criteria for "culling" [i.e., tossing out] data, depending on condition).

The best way to reduce experimenter bias is to, effectively, eliminate the experimenter by switching to computer-controlled testing and analysis. If you can't do this, you can try to force experimenters' behavior to be consistent across condition via "interaction scripts" or use the "double-blind" method where the experimenter doesn't know what condition the subject is in or the data are from.

The main kind of participant bias that threatens internal validity is "good subject" behavior which is usually triggered by demand characteristics. [Note: "good subject" behavior is when the subject alters his or her behavior to produce the results that the subject believes that the experimenter wants; there is also "bad subject" behavior is when they try to give the opposite results and that's equally a problem when it occurs.] This acts like a confound because it affects different conditions differently. It isn't technically a confound because it's not directly observable, but it acts like one.

The other main kind of participant bias is evaluation apprehension, but it mostly threatens construct validity, instead of internal validity, because it usually alters subject behavior in all conditions to the same extent, mostly by causing them to behavior in an artificial manner. [Note: evaluation apprehension, in general, is being worried about being judged negatively for your behavior; it can cause subjects to be less than completely honest in their responses. The subject is not answer the question, so you aren't measuring what you intended to measure; that's where you lose construct validity.]

The best way to reduce the chance of evoking "good subject" behavior is to reduce or eliminate the demand characteristics. This includes using a between-subjects design and/or concealing the real purpose of the experiment by burying the key aspects in a lot of "filler."

The best way to reduce the chance of triggering evaluation apprehension is to keep other people away from the subject. This includes using computers or paper-and-pencil forms to collect the data, instead of face-to-face questioning. Also, do everything possible to get the subjects to believe that their data will not and can not be linked back to them via, e.g., labeling all forms with arbitrary numbers, instead of their names.

Multiple choice: First: A. All threats to internal validity are confounds; lack of specificity in the measure lowers discriminant (construct) validity; lack of exhaustiveness in the measure lowers convergent (construct) validity; and violating statistical assumptions lowers statistical conclusion validity. Second: D. Experimenter bias can creep in any point during the running of subjects, collection of data, and analysis (pre-processing) of data.