Study Design Worksheet

Brief description of the purpose of the study

Sample

What is your population?

What is your sample?

What is the sample size?

How was sample size determined?

How are participants assigned to groups (if applicable)?

What are the inclusion/exclusion criteria? What is your plan for minimizing selective attrition?

Are your participants compensated? If so, how?

Does your study involve deception? If so, include a justification for the deception.

What is your plan for ensuring that your study is conducted ethically? How do you plan to ensure that your participants will be debriefed? What is your plan for terminating the study early if it is determined that is necessary to ensure participant safety/comfort?

Testing Location
Where is the study being done? Are there any special considerations/logistics that need to be considered?

Design

Summarize the design of your study

What are the independent variables?

What are the dependent variables?

What other variables are there that you cannot control? Which of these do you need to consider in analyses, and why?

Any potential confounds?

Are there any potential order/carryover effects? How will you account for those effects?

What are the potential ways that the experimenter could influence the results of the study? How might those effects be minimized?

Coding

How will participant responses be coded?

Who will code participant responses?

How will you calculate inter-observer agreement?

How will you deal with disagreements?

How will you ensure that observers are naïve to study conditions (if relevant)?

What steps will you take to avoid observer and/or consensual drift?

Hypotheses and Anticipated Effects

Planned Analyses

Evaluate your study with respect to:

Internal validity -- Do the DVs relate to the IVs as claimed, or are there alternative explanations?

External validity -- Can the results generalize outside of the sample you tested, the setting you tested in, the researcher(s) who conducted the study, the specific materials used, the time (of day, year, history), etc.?

Construct validity -- Can other plausible theoretical explanations for the result be ruled out?

Statistical conclusion validity (after data are analyzed) -- Are the statistical conclusions that are drawn from the analyses of the data accurate?

Record Keeping Plan

How will you keep track of participants and exclusions? Coders? Data? How will you ensure that someone else could understand your organization and could retrace your steps?

How will you keep track of any changes to the study design?

Before, during and after study completion:

Evaluate you study for potential threats to internal and external validity. Some to consider:

- *Selection bias*: Assigning non-equivalent participants to compared groups
- *Selective drop-out or exclusion*
- *History*: Changes in events across the study duration
- *Testing*: One task could impact later performance on a task
- *Reactivity*: Unintended effects of experiment/er on participants' responses
- *Low test-retest reliability*: Errors in measuring dependent variable on retest
- *Low statistical power*: Can't find effects, or find spurious effects, because sample size is too small, too many variables, etc.
- *Motivation effects*: One group may be more or less motivated than another due to compensation, task demands, or a combination of the two.
- *Experimenter bias:* Expectations of experimenter influence results
    - Failure to adequately ensure the naivety of experimenter/coder to conditions/hypotheses
- *"Organizational" bias:* May happen with multiple experimenters/coders: even naïve experimenters/coders can introduce bias if not randomly assigned to conditions.
- *Changes in experimenters/coders over time*

Evaluate your study for potential threats to statistical conclusion validity. Some to consider:

- *Is the sample size sufficient and justified?*
- *Does the design have construct validity?*
- *Do the statistical tests chosen follow from the design and the data type?*
- *Are the outcomes of all statistical tests reported?*
- *Are descriptive and inferential stats interpreted appropriately?*
- *Do all conclusions have stats to back them up?*
- *Do you have all the information you need to evaluate the above?*