

Experiments: Design and Practice

Experimental Method

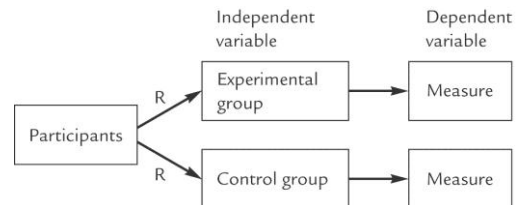
- Experimental method has the advantage of allowing a relatively unambiguous interpretation of the results.
 - Manipulated independent variable (2 or more groups)
 - Measured dependent variable

What is a confound?

- How does it relate to internal validity?
- How do we control for confounds?

Simple Experimental Design

- One independent variable with two levels
- Posttest design



“R” = random assignment to conditions

Pretest-posttest Design

- Same as a posttest-only design but adds a pretest before the experimental manipulation
- Why would a researcher use this design?

Assigning Participants to Experimental Conditions

- Between (Independent) groups design
 - Participants are in only one group

Group A	Group B
10 randomly assigned participants bike alone	Another 10 randomly assigned participants bike with others

Assigning Participants to Experimental Conditions

- Within (Repeated Measures) groups design
 - Participants are in all groups
- What might be a confound?

Group A	Group B
10 participants bike alone	The same 10 participants bike with others

Order Effects

- Types
- How to remedy?
 - counterbalancing
 - time intervals

Matched Pairs Design

- Matched pairs design – ensures groups are equivalent on a matching variable prior to the IV. Used with small sample sizes.
 - Match participants on a particular characteristic (usually a variable strongly related to the DV).
 - After matching, randomly assign to conditions.

Manipulating the IV

- Straightforward manipulation
 - don't necessarily disclose purpose of study
- Staged manipulation
 - used to create a situation or psychological state in participant
 - use of confederates

Manipulation checks

- measuring the effect of the IV on participants
- a test of construct validity of the IV
- often used in a pilot study

The DV

- Usually in the form of self-report, behavior, or physiological measure
- sensitivity issues:
 - floor effects
 - ceiling effects
- researchers can use a pilot study to test for sensitivity

Experimental Control

- Participant expectations
 - demand characteristics
 - placebos and the placebo effect
- Experimenter expectations
 - expectancy effects
 - blinding