Introduction to Research Design

Scientific method (again)
- Theory development
  - What qualifies as a theory?
- Theory testing
  - Positivist approach
  - Inductive vs. deductive theorizing

Some Terminology

Dependent Variables (DV) and Independent Variables (IV)
- Van Evera definition:
  - Theories are general statements that describe and explain the causes or effects of classes of phenomena. They are composed of causal laws or hypotheses, explanations, and antecedent conditions.
- Alternative conception:
  - We explain particular phenomenon – our DV – as a function of specific explanations – our IVs.
- Examples
- Strategies

Terminology (continued)

Internal vs. External validity
- Internal validity: the "real effect."
- External validity: "generalizability."
- Threats to validity
  - Example (internal): School vouchers
  - Example (external): Social psychology

The Practice of Research

Campbell and Stanley: Principles for Design
- Selecting a research plan
  - Threats to internal validity
  - Threats to external validity
- Think hard about the implications of design (including the things you can’t control)

Threats to Validity

Internal
- History: Things happen
- Maturation: Things happen even when things don’t happen
- Testing: Taking the test can have an effect
- Instrumentation: Nature of measurement might change
- Statistical Regression: Regression to the mean
- Selection: Experimental group different than control group
- Mortality: People die (or drop out)
- Interaction: Things get complicated
Threats to Validity

- **External**
  - Interaction of Test and X: Taking test changes effect of treatment
  - Interaction of Selection and X: Both control and experimental group are different
  - Reactive Arrangements: Experimental setting is artificial

Bottom Line (76 pages of Campbell and Stanley later): Be Careful!

Testing theories

- Van Evera: 2 ways to test theories:
  - Experimentation
  - Observation
    - Case studies
    - "Large N" (statistical) analysis

The Practice of Experimentation

- Campbell and Stanley: The hard sell
- The causal inference movement in political science
- Limitation of experiments
  - Experimental work as the plutonic ideal
- Experiments are about control
  - Payoff in causal inference
  - Maximize internal validity (if do them correctly)
  - Random Assignment

Note: Random assignment ≠ random selection

Other Concerns

- Construct validity
  - Why does the treatment work?
  - Is the treatment what we say it is?

Experiments vs. Quasi Experiments

- Experiments: C&S – p.8: If you use random assignment, you don’t need to worry about internal validity
- Quasi-Experiments: C&S – p. 40, 56 – things are not so neat
  - Specific threats to worry about
  - Designs that control for all threats to validity might be hard to operationalize

Experiments

- Experimentation:
  - Lab experiments
    - Study of political cognition (Berinsky and Kinder)
    - Effects of ethnic diversity (Habyarimana et al.)
  - Field experiments
    - Effect of canvassing, telephone calls, and mailing on turnout (Green and Gerber)
    - Effectiveness of "franking" – baby books and ballots (Cover and Brumberg)
  - Natural Experiments
    - Effect of election observers on vote fraud (Hyde)
Kosovo Experiment

- **Theory**: Frames as stories
- **Hypothesis**: Organization of text should affect recall and choice
- **Treatment**: ?
- **Measures**: ?