Experimental Design
Experiments

Experiments are a good technique to collect quantitative data for statistical analysis.

Experiments are the only technique that allow a researcher to verify a causal explanation.

Experiments require researchers to manipulate conditions, and therefore raise ethical issues.

Experiments are NOT a very common data collection technique in sociology.
Experiments

For the purposes of this class, the important thing to understand is the LOGIC of experimental design.
Appropriate Research Questions for Experiments

Experiments are appropriate for research questions that:

- Demand a causal explanation
- Have a very limited scope (proximate causation)
- Use individuals or small groups (Micro-level research)
Experiments, Terminology

VARIABLES:
- Treatment/Independent Variable
- Dependent Variable

CASES:
- Random Selection
- Experimental/Treatment Group
- Control Group
- Random Assignment
- Double-Blind Assignment

MEASURES:
- Pretest
- Posttest
Steps in Conducting an Experiment

1. Specify your Hypotheses; Identify your Independent and Dependent Variable
2. Draw a Random Sample from your Population/Sampling Frame
3. Create a Treatment Group and a Control Group
4. Randomly Assign Subjects in the Sample to Either the Treatment Group or the Control Group
5. Apply a Pre-Test to the Control Group and the Treatment Group; Measure your Independent and Dependent Variables
6. Apply the Treatment to the Treatment Group and a Placebo to the Control Group
7. Apply a Post-Test to the Control Group and the Treatment Group; Measure your Independent and Dependent Variables
8. Compare the Difference in the Dependent Variable between the Treatment and Control Groups
The Logic of Experimental Design: Choosing Subjects and Groups

Sampling

Sampling Frame

Random Selection

Sample

Group Assignment

Random Assignment

Sample

Treatment/Experimental Group

Control Group
The Logic of Experimental Design: Blind and Double-Blind Group Assignment

BLIND EXPERIMENT

Sample

Treatment/Experimental Group

Random Assignment

Control Group

Subjects are blind to the hypotheses

DOUBLE-BLIND EXPERIMENT

Sample

Treatment/Experimental Group

Random Assignment

Control Group

Assistant is blind to the groups

Subjects are blind to the hypotheses

SSC 470/570: Methods of Social Research
The Logic of Experimental Design: Tests and Treatment

**PRE-TEST**
- Treatment/Experimental Group
- Control Group
- Researcher Applies Pre-Test to Both Groups

**TREATMENT**
- Treatment/Experimental Group
- Control Group
- Researcher Applies Treatment to Experimental Group, but NOT to Control Group

**POST-TEST**
- Treatment/Experimental Group
- Control Group
- Researcher Applies Post-Test to Both Groups
- Measures Difference Between Groups

*SSC 470/570: Methods of Social Research*