

True Experiments

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1 Housekeeping

2 True Experiments

- Homework 2 is due
- Group meeting 2 March 14 (Lit. Review)

Correlation vs Causation

- Correlation reveals some interesting information but it can also be misleading
- *Causal identification* is key in social science
- Experiments allow for identification of *causal mechanism*, but how?

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- What would the world look like if our treatment took place vs. if it didn't?

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- **Extraneous** variables will have the same value across both groups (think last class and the example w/ GPA and film vs bio-med students)

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- <https://youtu.be/hFV71QPvX2I?t=403>

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- Measured variation in the IV prior to assessment of change in DV
- Random assignment to the two or more comparison groups (control, treatment)

Threats to Inference

- **external validity:** how "realistic" is the experiment or how relevant to the "real world" is it and what population can we make valid inferences for?
- **internal validity:** Did the actual treatment result in changes in the DV?

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- Pick a research **question** based on research
- Figure out **theory**
- Identify **null and alternative hypotheses**
- Identify **population** and **sample frame**
- **Random sample** from population (**external validity**)

...Steps to an experiment

- Then **randomly assign** subjects into **control** and **treatment** groups (**internal validity**)

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- Measure DV for both control and treatment groups (**post-test**)

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- Statistically test difference between values of DV across control and treatment groups

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- Measure DV for both control and treatment groups (**post-test**)
- Statistically test difference between values of DV across control and treatment groups
- Results of statistical test allow you to **confirm or reject** your hypotheses

Threats to internal validity in experiments

- Selection bias encompasses all forms of threat b/c it undermines random assignment AND random sample
- Thus it's causes issues for external AND internal validity

Some things to ponder

- Random sample vs Random Assignment
- Control variables vs control group
- Correlation vs causation