# Pre-experimental and Quasi-experimental designs

*Please silence your phones, PDAs, watches, and other noise-making devices.*

## Terminology of experiments

- Independent variable
  - Manipulated (or active, or treatment) variable
  - Not manipulated (or selection, or classification, or individual difference) variable
- Dependent (or outcome) variable

## Validity of experimental research: Internal

- Definition
- Threats to internal validity
  - History
  - Maturation
  - Testing
  - Instrumentation
  - Statistical regression 

## Internal validity- threats (cont.)

- Selection
- Mortality
- Interactions with selection
- Diffusion of treatments
- Compensatory equalizations of treatments
- Compensatory rivalry (John Henry effect)
- Resentful demoralization

## Experimental Validty: External validity

- Population validity
- Ecological validity
  - Definition

## Examples of factors affecting ecological validity

- Multiple treatment interference
- Novelty and disruption effects
- Pretest sensitization
- Posttest sensitization
- Interaction of history and treatment effects
- Interaction of time of measurement and treatment effects

## Pre-experimental designs

## The one shot case study:
A design generally yielding meaningless results

X O

## One group pretest-posttest design.

- Description
  O X O
- Threats to internal validity
  - History
  - Maturation
  - Testing
  - Instrumentation

# Quasi-experimental designs: Non-random assignment

## QE #1: Static group comparison design.

- 1. Description

  X O

  O
- 2. Threats to internal validity
  - Selection
  - Interactions with selection
    - history by selection
    - maturation by selection
    - mortality by selection
    - statistical regression by selection

## QE #1 (cont.)

- Threats
  - Diffusion of treatments
  - Compensatory equalizations of treatments
  - Compensatory rivalry (John Henry effect)
  - Resentful demoralization
- Statistical analysis: t test on posttest means

## QE #2: Non-equivalent control group design

- Description

  O X O
  O O

- Threats to internal validity
  - Mortality
  - Interactions with selection
    - history by selection
    - maturation by selection

## QE #2 (cont.)

- Threats to internal validity
  - mortality by selection
  - testing by selection
  - instrumentation by selection
  - statistical regression (if extreme group used) Diffusion of treatments
  - Compensatory equalizations of treatments
  - Compensatory rivalry (John Henry effect)
  - Resentful demoralization