

# Psychology Research Process

- Logical Processes
- Induction
  - Observation/Association/Using Correlation
  - Trying to assess, through observation of a large group/sample, what is associated with what?
  - Examples: Naturalistic Observation, Surveys, Qualitative studies (e.g. focus groups)
  - Strengths: Helps build theories
  - Weaknesses:
    - 1) Don't know when you're wrong (statistics help...)
    - 2) Cannot show cause and effect

# Psychology Research Process

- Logical Processes
- Deduction
  - Using Premises (from theory) to test theory
  - Example:
    - Rape Blame study
    - Women are held responsible when drinking
    - Woman is drinking
    - All other things are held equal (controlled)
    - She will be held responsible (more than when not)
  - Derive Hypothesis
  - Test Hypothesis by setting up situation in which premises occur

# Psychology Research Process

- Logical Processes
- Deduction (continued)
  - What if hypothesis shown to be correct?
  - Support for theory (cause and effect)
    - However, problem of confounding variable
  - What if hypothesis found not correct?
    - 1. Maybe theory is wrong
    - 2. Maybe something you did not control for (hold constant) had a strong effect on results (caused much variability)
    - 3. Statistics help with #2; replication helps with #1

# Psychology Research Process

- Terms
  - **Theory**: An organized, systematic explanation of a phenomenon
  - **Hypothesis**: A more specific application of the theory
    - **Particular conditions → Particular outcomes**
    - **(Because....?)**

# Psychology Research Process

**Particular conditions → Particular outcomes**

**Particular conditions / Independent variable**

**Particular outcome / Dependent variable**

# Psychology Research Process

- Independent Variable:
  - A (hypothetical) cause that the experimenter manipulates
- Dependent Variable:
  - The (hypothetical) effect that the experimenter expects to see
  - Experiment we did
  - IV?      DV?

# Psychology Research Process

Examples: **IV's?** **DVs?**

- 1) Effect of Alcohol Intoxication on Braking Distance When Driving
- 2) Effect of Ambient Room Temperature on Activity Levels of Mice
- 3) Do Specific Examples in Class Produce Better Learning in Psychology Classrooms?
- 4) Instituting a “No Smoking” Policy in a Restaurant: Does It Change the Clientele?

# Psychology Research Process

## **Operational Definition**

“A definition that is specific enough to be used to actually perform an experiment” Pg 46

Must be measurable

Must have some validity

# Psychology Research Process

Examples: **Operational definitions?**

- 1) Effect of Alcohol Intoxication on Braking Distance When Driving
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- 4) Instituting a “No Smoking” Policy in a Restaurant: Does It Change the Clientele?

# Psychology Research Process

Examples: **Hypotheses** probably being tested?

- 1) Effect of Alcohol Intoxication on Braking Distance When Driving
- 2) Effect of Ambient Room Temperature on Activity Levels of Mice
- 3) Do Specific Examples in Class Produce Better Learning in Psychology Classrooms?
- 4) Instituting a “No Smoking” Policy in a Restaurant: Does It Change the Clientele?

# Psychology Research Process

## Between Groups Vs. Within Groups Designs

- Example: Braking Distance study
- 100 undergrads—random assignment
  - 50 sober; 50 intoxicated
- Distributions do not overlap—everybody who is intoxicated takes way longer to brake

Hypothesis supported.

# Psychology Research Process

## Between Groups Vs. Within Groups Designs

- Example: Braking Distance study
- 100 undergrads—random assignment
  - 50 sober; 50 intoxicated
- But what if:
- Distributions overlap because, even sober, braking distance times vary so much...
- Hmmm, what to do?

# Psychology Research Process

## Between Groups Vs. Within Groups Designs

- Example: Braking Distance study (cont.)
- I Know!!!
- How about a Within Groups Design??
- How would that work?
- But what might be the problems with it?
- How about Class Study 1?

# Psychology Research Process

## Review

- Induction vs. Deduction
- Theory
- Hypothesis
- Independent Variable
- Dependent Variable
- Confounding Variables
- Operational Definition
- Between Group vs. Within Group design

# Quick Review of Statistics

Purpose of Statistics in Research

Describe and Summarize the data

**Descriptive Statistics**

Test the hypothesis or hypotheses

**Inferential Statistics**

# Quick Review of Statistics (cont)

## **Descriptive Statistics:**

Measures of central tendency

Mean

Median

Mode

Measures of variability

Range

Variance

Standard Deviation