

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
- 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

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