

Research Methods | Chapter 1

Conducting Research

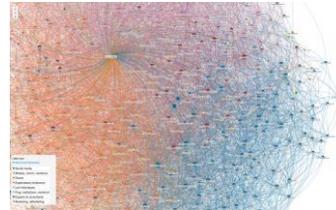
- Goals of Psychology
 - Describe
 - Explain
 - Predict
 - Control
- Pitfalls of intuition and “common sense” explanations: Hindsight bias, overconfidence
- Remember psychology’s definition: “The scientific study of behavior and mental processes”

Conducting Research

- The Scientific Attitude: Rely on *Empiricism!*
 - Curiosity: passion to explore and understand
 - Skepticism: questioning results; retesting
 - Humility: understanding humans’ limitations and the possibility for error
- Ultimately, psychologists must be critical thinkers
 - Do not accept “truths” without first testing them
 - Look at evidence, question assumptions, filter out bias

Descriptive Research Methods

Intended to DESCRIBE the data- not manipulate it in any way!



Survey

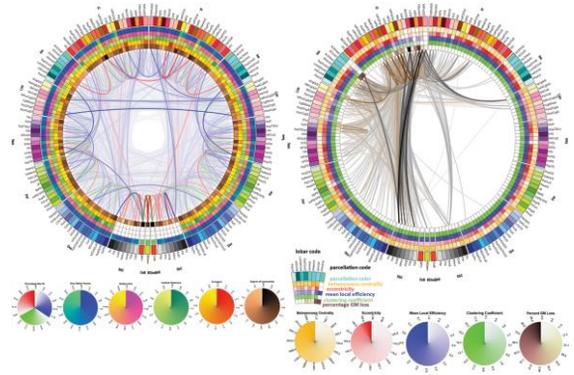
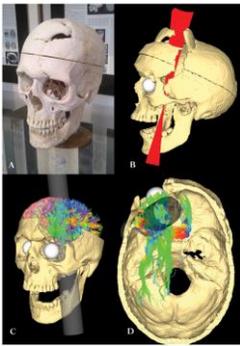
- Lots of information – FAST!
- Gather info on feelings, opinions, behavior patterns
- Important things to think about:
 - Population-- Random sample, Stratified Sample
 - Question Wording
 - Interpretation of results could be distorted



Case Study

- In-depth research to shed light on behaviors on an individual (or a small group)
 - Can we generalize about all people based on one?
 - People lie
 - Researcher biases can influence behavior
- Ex: Phineas Gage





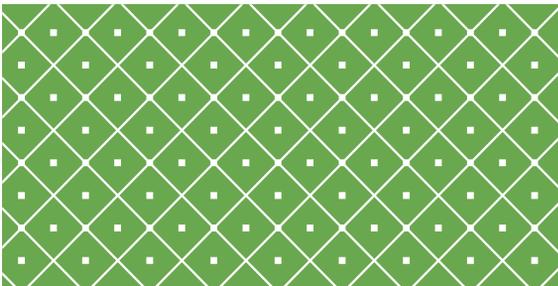
Naturalistic Observation

- Observing people in their natural setting
- Hawthorne Effect minimized
 - Observer bias
 - Control?

Jane Goodall:

<http://www.youtube.com/watch?v=LKyrlFyOi04>

- A researcher conducts detailed interviews with a few unmarried teenage fathers to learn about how they feel and what they think about their role as fathers and summarizes their feelings in a written narrative.
- A researcher conducts an interview with college students regarding their extracurricular activities.
- Students majoring in early childhood education visit preschools to observe the children there.
- A college instructor gives weekly quizzes to students in one section of his course but no weekly quizzes to students in another section to see whether this has an effect on their test performance.



Correlational Research

Correlation

A **RELATIONSHIP** between two variables

- height and weight--positive
- motivation and learning-- positive
- speed and accuracy-- negative

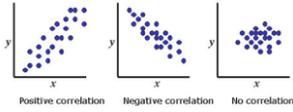
Positive-- when A goes up, B goes up!

Negative-- when A goes up, B goes down!

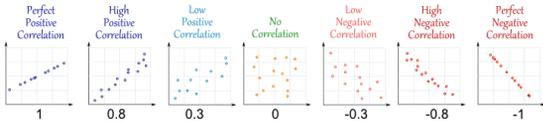
No Correlation-- when A goes up, B doesn't change

Correlation

Two variables graphed on a scatterplot...



Can show strength as well



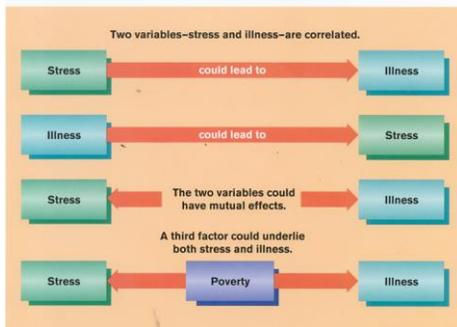
Correlation DOES NOT = Causation

In an experimental study, you can state that the independent variable causes the dependent variable to change

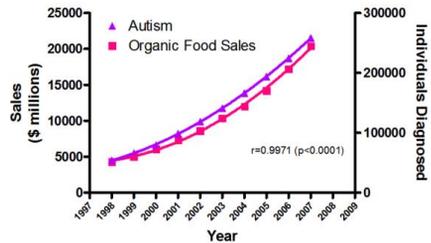
But in any observational study, you can only demonstrate correlation, not causation

- example: SAT & GPA scores
- example: stress & illness (see next page)

Res 03 Correlation Does Not Prove Causation

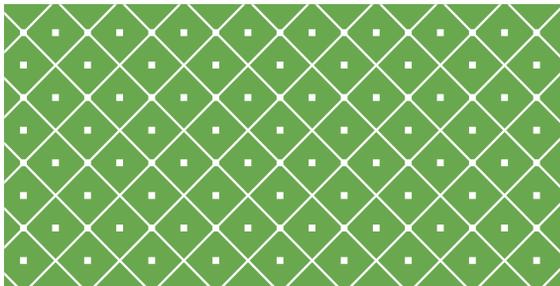


The real cause of increasing autism prevalence?



Sources: Organic Trade Association, 2011 Organic Industry Survey; U.S. Department of Education, Office of Special Education Programs, Data Analysis System (DANS), OMB# 1620-0043. *Children with Disabilities Receiving Special Education Under Part B of the Individuals with Disabilities Education Act

<http://o9.com/on-correlation-causation-and-the-real-cause-of-auti-1494972271>



Scientific Method

Experimentation

Designed to manipulate variables and CONTROL the situation

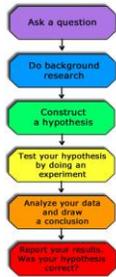
Follow the scientific method



The Scientific Method

- Generate a question
- Formulate a theory
- Develop a hypothesis (if-then)
- Test hypothesis
 - Operational definitions
 - Clear and concise
- Replication of results

The Scientific Method



Experiments: psych terms

- Hypothesis (If..then..)
- Subjects (people or animals on whom the study is being conducted)
- Variables
- Independent Variable- controlled by experimenter
 - Dependent Variable- measured by experiment
 - Confounding Variables???

Experiments: psych terms

- Experimental vs Control groups
- Single-Blind Study- subjects uninformed
- Double-Blind Study- neither participants nor researchers know what group the subject is in
- Placebo- has no active ingredients, works by the power of suggestion



Experiments: psych terms

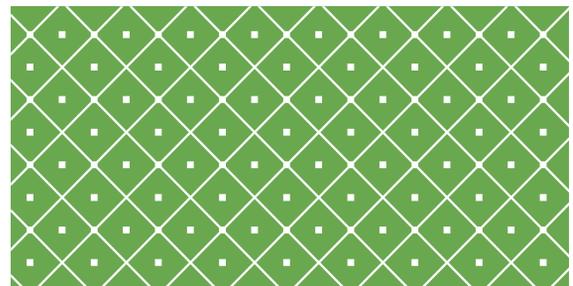
- Operational Definition- how the researcher defines the variables
- Sugary drink
 - Energy
 - Freshmen



Operational Definitions

- Decided by the researcher
- Do not have to be reliable
- Not always "good" or what you would agree with
- NECESSARY FOR REPLICATION**

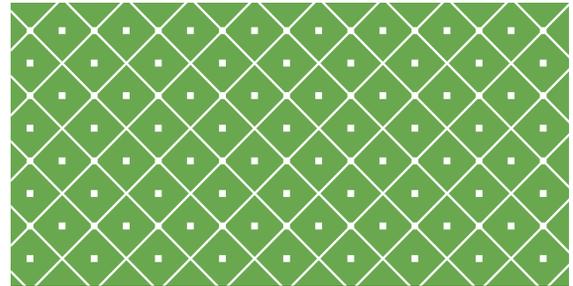
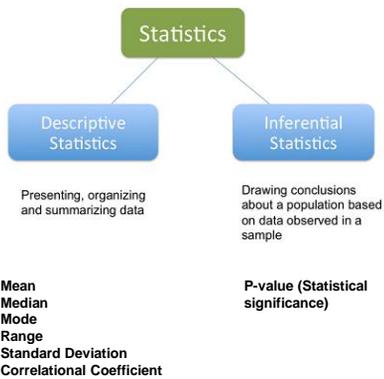
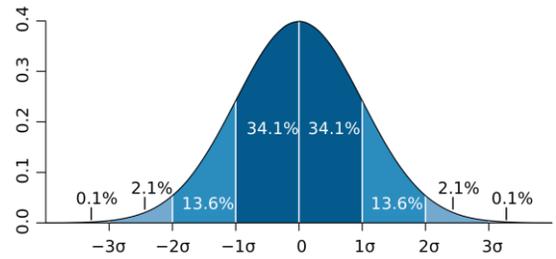
Variable	Operational definition	Value
Intelligence	Score on the Verbal SAT test (a standardized test)	550
Age	Response to questionnaire (a self-report measure)	21
Intelligence	Speed of repairing engine (a behavioral definition)	2 hrs
Intelligence	Number of hairs on left thumb (a stupid definition)	7



Statistics in Psychology

Notes

While reading "Module 8" take notes answering each of the learning targets, make sure to include definitions to any and all vocabulary terms you are unfamiliar with!



Ethics in Psychology

Ethics in Psychological Research

Ethical Guidelines published by the American Psychological Association (APA)

- Informed Consent
- Privacy
- Debriefing
- Animal rights?