

Research Methods



It is actually way more exciting
than it sounds!!!!

Why do we have to learn this stuff?

Psychology is first and foremost a science.



Thus it research.

Scientific Method

Psychologists, like all scientists, use the scientific method to construct theories that organize, summarize and simplify observations.

Scientific Method

(1) Theories

Example: Low self-esteem feeds depression.

generate or refine

lead to

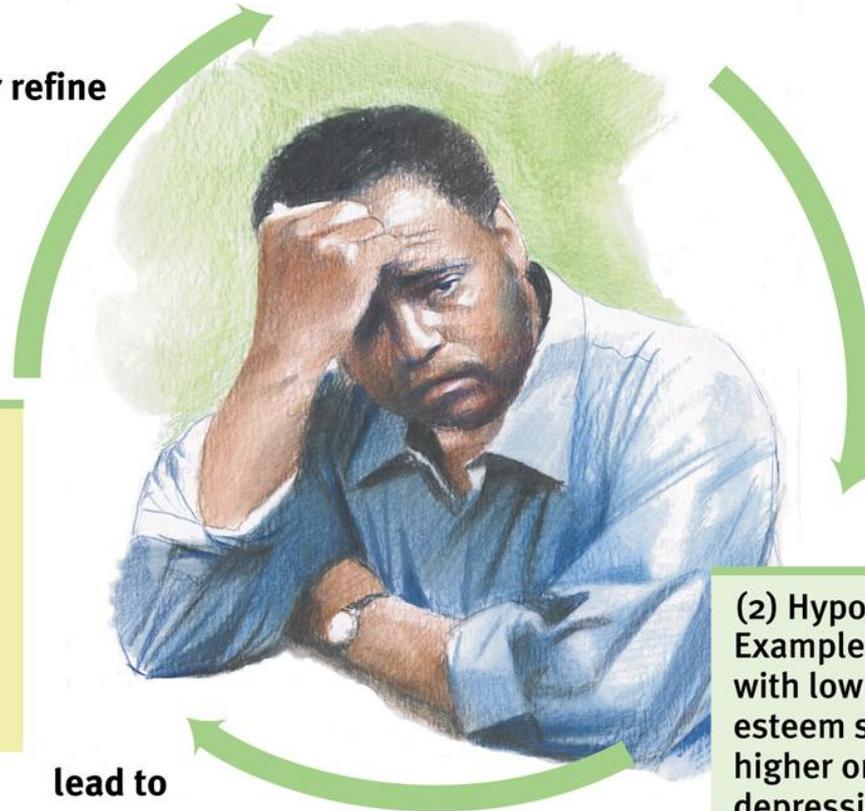
(3) Research and Observations

Example: Administer tests of self-esteem and depression. See if a low score on one predicts a high score on the other.

lead to

(2) Hypotheses

Example: People with low self-esteem score higher on a depression scale.



[Theory]

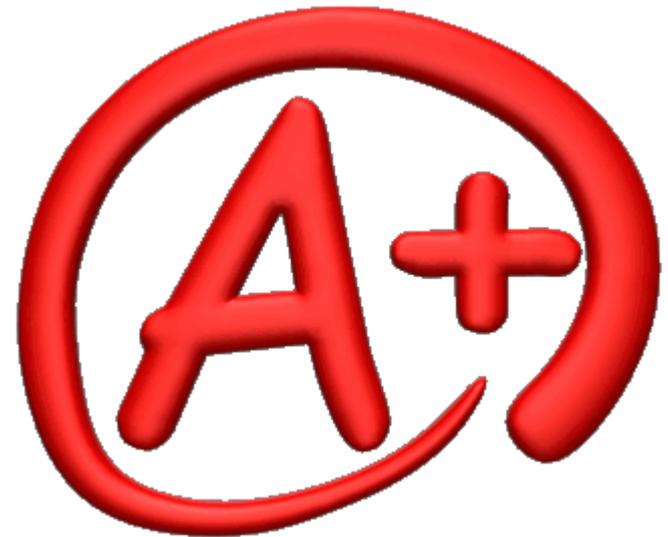
A **Theory** is an explanation that integrates principles and organizes and **predicts behavior or events.**

For example, low self-esteem contributes to depression.

Hypothesis

- A **Hypothesis** is a testable prediction, often prompted by a theory, to enable us to accept, reject or revise the theory.
- It's an educated guess, often written as an if/then statement, that expresses a relationship between two variables

If Lateesha participates in class,
then she will earn an A+.



Research Observations

Research would require us to conduct a study to either confirm or disprove our hypothesis.

(1) Theories
Example: Low self-esteem feeds depression.

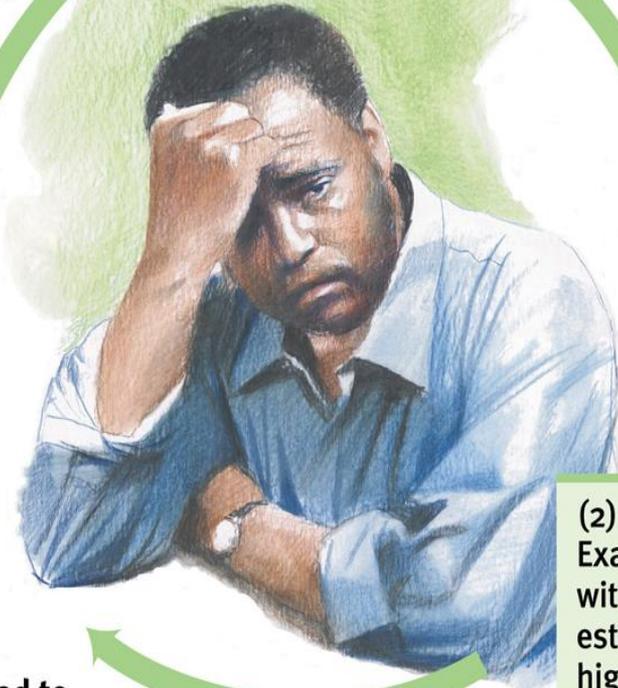
generate or refine

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Experimentation

Exploring ****Cause and Effect****

- Like other sciences, experimentation is the backbone of psychology research. Experiments isolate causes and their effects.
- The purpose of an experiment is to determine how a **treatment** affects a **behavior**.
- Looking for cause and effect



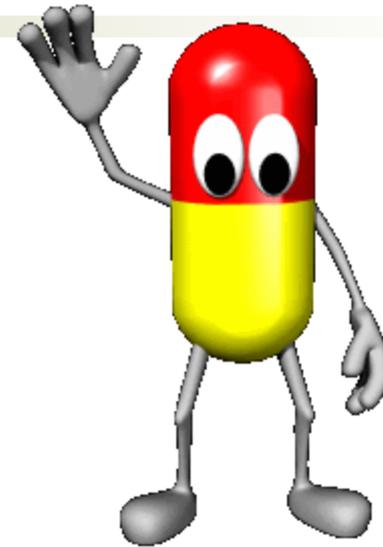
[Independent Variable]

An **Independent Variable** is the factor that researchers manipulate so they can determine its effect. The effect of the independent variable is the focus of the study.

What's the independent variable in our classroom experiment?

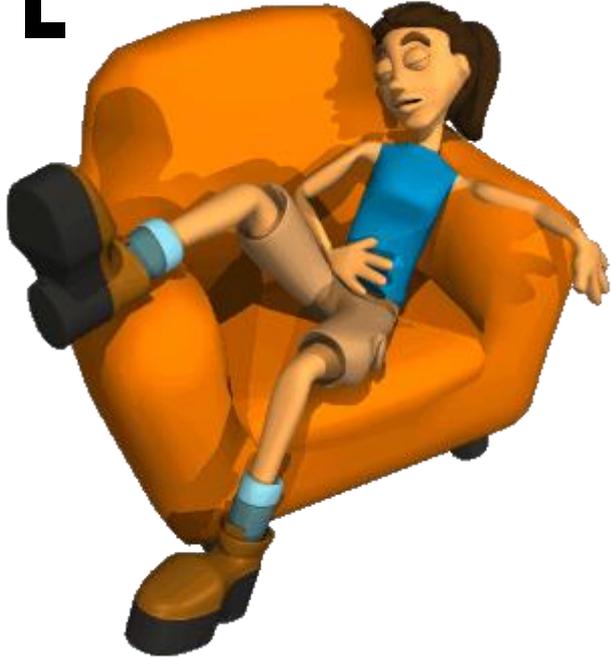
[Independent Variable (IV)]

- Whatever is being manipulated in the experiment.
- Hopefully the independent variable brings about change.
- What's the independent variable in our classroom experiment?



If there is a drug in an experiment, the drug is almost always the independent variable.

[Dependent Variable (DV)]



The dependent variable would be the effect of the drug.

- Whatever is being measured in the experiment.
- The factor that changes in response to the independent variable
- What's the dependent variable in our classroom experiment?

[Experimental Group]

The Experimental Group is the group that RECEIVES the treatment

Treatment usually means the “weird” thing being done to a group

What’s the experimental group in our classroom experiment?

[Control Group

The Control Group is the group that does NOT receive the treatment

We need this group to compare to the experimental group to see if the independent variable created an effect or not

What's the control group in our classroom experiment?

IRS



"About this new tax plan — I'd like to volunteer to be in the control group."



Confounding Variables



If I wanted to prove that smoking causes heart issues, what are some confounding variables?

Confounding Variables are other variables that could possibly be affecting our experiment's outcome

We want to MINIMIZE or ELIMINATE these!!



Lifestyle and family history may also effect the heart.



What were some confounding variables in our classroom experiment?

[Quick Experiment Creation]

Theory: Breast-feeding causes higher intelligence

Hypothesis: Babies who are breast-feed will score higher on IQ tests than those who are fed formula milk.

What would the IV, DV, Experimental Group, and Control Group be??

Experimentation

A summary of steps during experimentation.

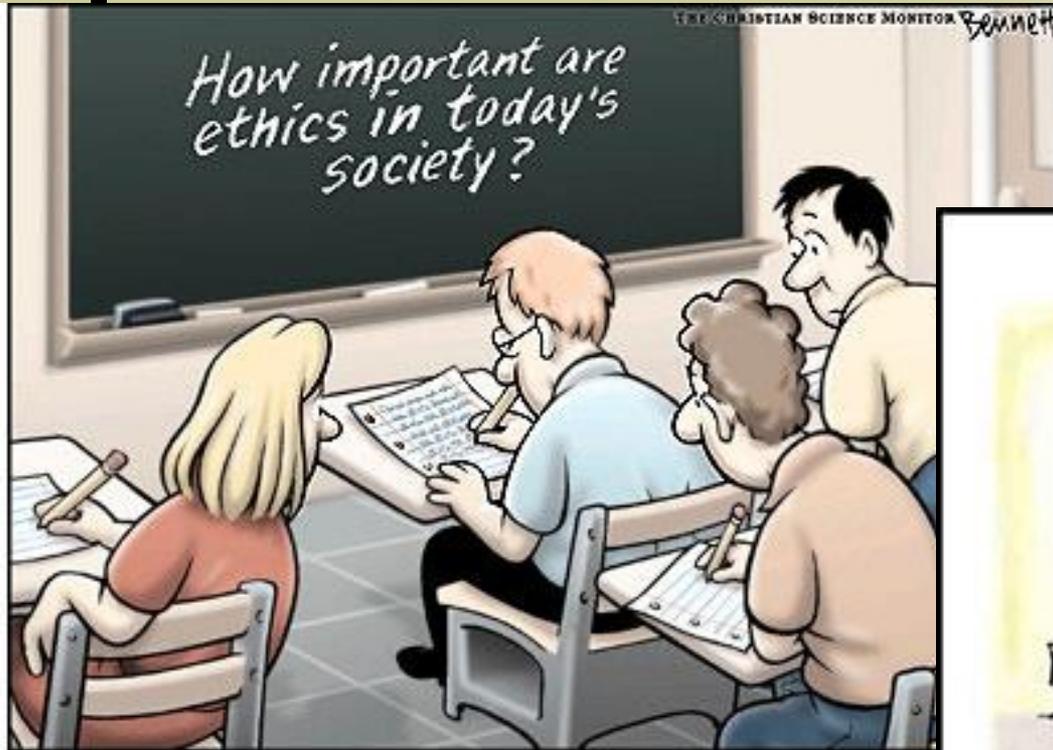
Random assignment

(controlling for other variables such as parental intelligence and environment)



Condition	Independent variable	Dependent variable
Experimental	Breast milk	Intelligence score, age 8
Control	Formula	Intelligence score, age 8

Experimental Ethics



Approving an Experiment

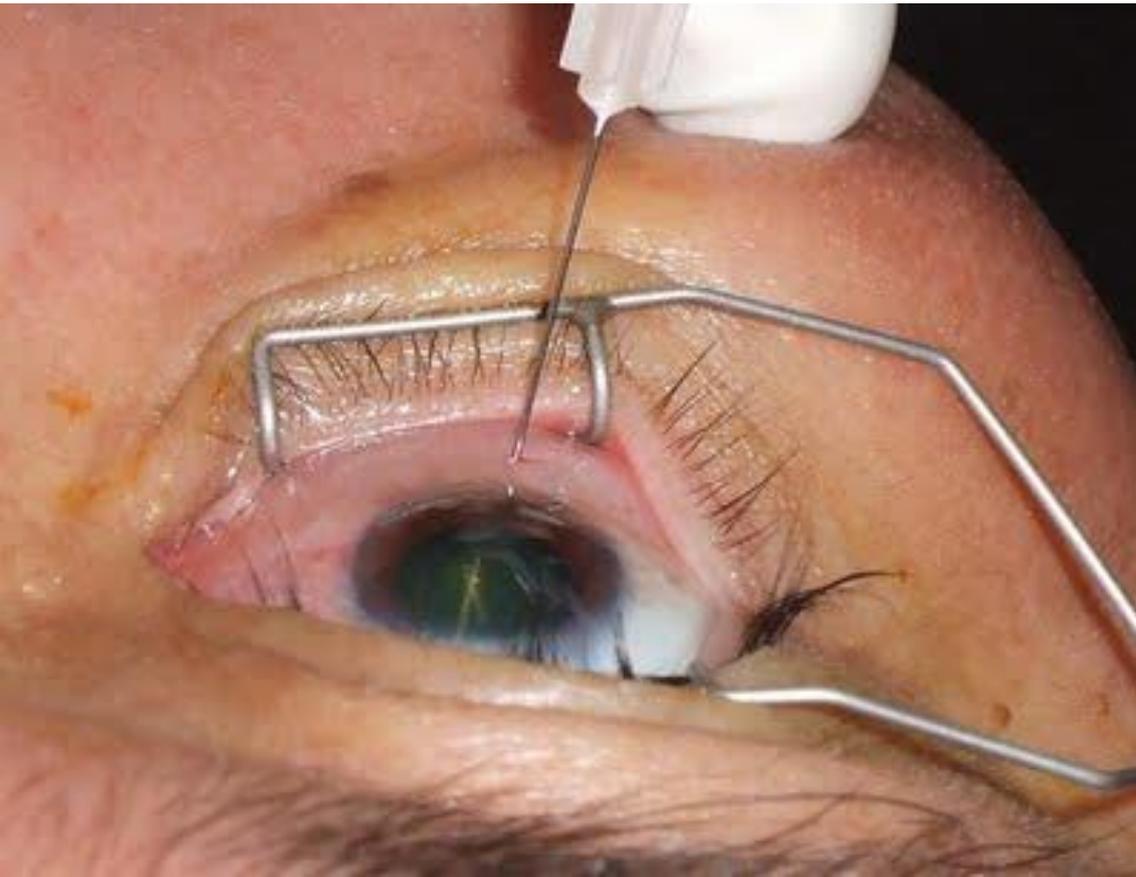
- Ethical guidelines established by the APA (American Psychology Association)
- Before any experiment is conducted, it must be reviewed by an ethics board



*You should spend the next week typing down names of **all** co-authors on your paper.*

[Basic Ethical Principles

- 1. Must not harm participants

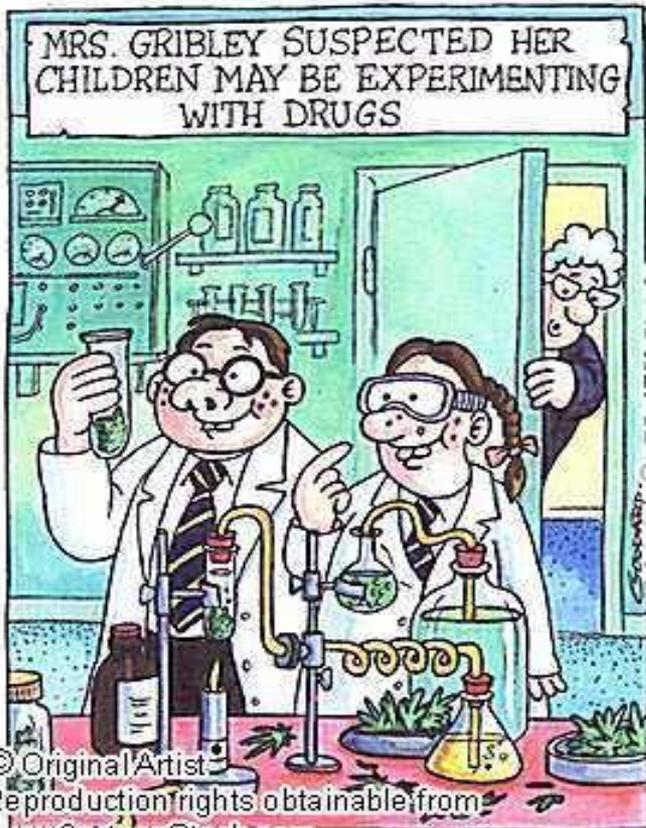


Nazis tried to change eye color by injecting dye directly into the eyeball

Many went blind as a result

Basic Ethical Principles

- 2. Must not break any laws



Hard to do research on the effects of illegal drugs because it would break the law

Basic Ethical Principles

- 3. Must obtain informed consent before and debrief after



Basic Ethical Principles

- 4. Deception is OK as long as participants are informed of the deception after the experiment is concluded



DECEPTION

"Hang on... I think it might be a trap..."

Basic Ethical Principles

- 5. Must keep individual results confidential
 - Exception is when a participant reveals plans to hurt self or someone else





We received him from a lab in U.S.



Boy, I would love to be his pet cat!

■ 6. Harm to animals is permissible if it is for the greater human good, there is no alternative, and the benefits outweigh the harm

Why use animals instead of humans?

- The processes that underlie behavior in animals and humans are often similar.
- Animals are worthy of study for their own sake.
- Animal behavior is generally simpler to understand.

