

Experimental Method

- Looking to prove causal relationships.
- Cause = Effect
- Laboratory v. Field Experiments



Smoking causes health issues.



The Science of Psychology: Four Major Research Methods

1. *Experimental Research*:
carefully controlled scientific
procedure that manipulates
variables to determine *cause*
and effect

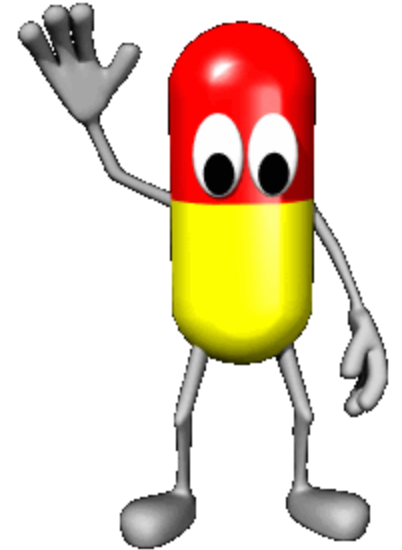


One must first come up with a question:

Question: What is the relationship
between participating in class and
grades?

Independent Variable

- Something that is changed by the researcher
 - What is tested
 - What is manipulated
 - Answers the question "What do I change?"



Comprehension check...

- If you wanted to see if the level of participation caused a change in grades.....
 - What would the independent variable be?

Dependent Variable

- something that might be affected by the change in the independent variable.
 - What is observed
 - What is measured
 - The data collected during the investigation
 - Answers the question "What do I observe?"



Comprehension check...

- If you wanted to see if the level of participation caused a change in grades.....
 - What would the dependent variable be?

Controlled Variables

- A controlled variable is not changed
- Also called constants
- Allow for a "fair test"
- Answers the question "What do I keep the same?"

Students of different ages were given the same jigsaw puzzle to put together. They were timed to see how long it took to finish the puzzle.

What was the independent variable?

Ages of the students

Different ages were tested by the scientist

What was the dependent variable?

The time it took to put the puzzle together

The time was observed and measured by the scientist

What was a controlled variable?

Same puzzle was used

All of the participants were tested with the same puzzle.

It would not have been a fair test if some had an easy 30 piece puzzle and some had a harder 500 piece puzzle.

Beware of Confounding Variables



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



- The object of an experiment is to prove that A causes B.
- a confounding variable is a variable that may inadvertently affect the outcome.

Lifestyle and family history may also affect the heart.

Operational Definitions

- Explain what you mean in your hypothesis.
- How will the variables be measured in "real life" terms.
- How you operationalize the variables will tell us if the study is valid and reliable.

If our hypothesis is that participating leads to better grades -

- What do you mean by participating?
- What do you mean by better grades?



Conceptual Level

Hypothesized relationship

Concepts

Frustration



Aggression

Concrete Level

Operational definitions

Prevented from playing with favorite toy



Number of times child strikes punching bag

Observed relationship