

Research Methods

How Psychologists Conduct Research

Methods Used

- Systematic or Naturalistic Observation
- Case Study
- Survey Method
- Experimental Method
- Correlation Methods

Systematic or Naturalistic Observation

- Where researchers observe others and infer about what they are doing.
 - Usually involves counting behaviors
 - Often is conducted in field settings and not in the lab

Advantages

You know the situation is real and not artificially set up.

- Can observe things that may cause the behavior that you cannot do in the lab.

Can observe things where you cannot do experiments.

Generally, provides a big picture

Disadvantages

- Observers can distort information
- Results can change if the subject becomes aware they are being observed
- Isn't very accurate

Case Study

- Is a major investigation of one unit.

The unit can be a:

Individual
University
Town

- Generally, is a detailed study of one individual or thing

Advantages

- Can develop understanding not obtained from examining experimental findings.
- Usually do when you have no idea about what is going on.

Disadvantages

- Can be very inaccurate if done poorly.
- Often gets biases from the person doing the study.
- Can get political pressure to achieve some result.

Survey Method

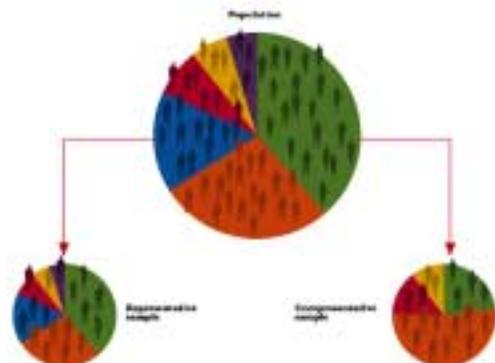
- Involves giving questionnaires or interviews to measure something in a population.
- Can measure
 - a. attitudes
 - b. behaviors
 - c. opinions

Advantages

- Can get a lot of information about a variety of things.
- Can get very sensitive information.

Disadvantages

- Survey sample must be representative of the population



Other Problems

- People lie
- Questions can be biased
- Direct marketing in guise of surveys has people leery of providing information.

Experimental Method

- Most commonly used by all the sciences
 - Evaluates variables
 - A variable is anything that varies over time
- Two types

Independent Variable

- The variable that is manipulated by the experimenter
- The amount of money you are given
- The volume of noise that you are presented with

Dependent Variable

- Is the variable that changes and which you observe

Noise and Heart Rate

Vary 3 Levels of Noise
Low Medium High
Examine Heart Rate
Does the Heart Rate
Increase stay the same decrease

- Heart rate changes because you are varying the level of noise

Thing that you vary is noise
Independent Variable

Thing you observe changes
in is heart rate
Dependent Variable

Advantages

- Can reach precise conclusions.
x causes y to occur.
- Can hold lots of extraneous things constant that may influence the outcome of a study.

Disadvantages

- Ethical issues
- Can be artificial
 - The lab is not the real world
 - but it can be closeCannot measure some things with experiments.
Attitudes
Opinions

Correlational Method

- Correlation is way to estimate the extent that two variables are related
- to each other
- However because two variables are related does not mean that one causes the other.

**CORRELATION DOES NOT
IMPLY CAUSATION**

Examples

Rooster crowing causes the sun to come up

Ice Cream and Drowning.

**Your Genetics Cause
Alcoholism and other
Disorders.**

**Birth Control Pills Cause
Breast Cancer**

**Correlations are Expressed
as a Number**

Numbers range between
+1 and -1

- The closer the number is to zero, the less relationship there is.
- or
- The closer the number is to plus or minus 1, the more relationship there is.

**.9 has a greater relationship
than a .4**

OR

**.3 has less relationship than a
.8**

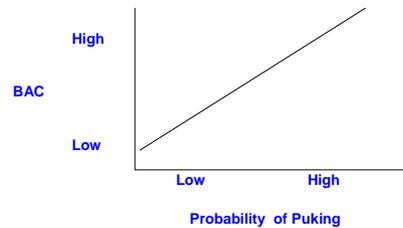
**AGAIN, THE NUMBER ONLY
TELLS YOU HOW MUCH
THE VARIABLES ARE
RELATED.**

**SOOOOO
What does the plus or
minus sign tell you.**

Positive Correlation

- As one variable increases another variable increases.

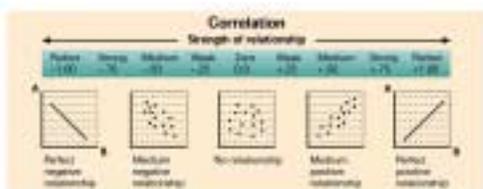
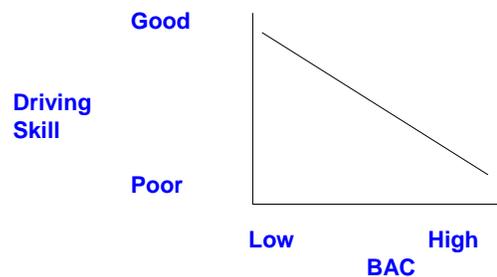
Drinking beer and probability of puking.
The more beer you drink, the higher the likelihood that you will puke.



Negative correlation

- As one variable increases, another variable decreases.

- As beer consumption increases driving skill decreases.



Advantages

- Can use with lots of variables and situations.
- Are more precise than the case study or observation methods.
- Can study variables you cannot do experiments on.
-

Disadvantages

- Cannot draw cause - effect relationships.
- Does not account for other variables that may actually control the behavior.

REMEMBER

CORRELATION DOES NOT IMPLY CAUSATION.

Illustration of the research methods in psychology

Research method	Description	Strengths	Weaknesses	Illustration
Case studies	Intensive study of an individual or a group of individuals.	Can provide detailed information about a specific case.	Can be biased and not generalizable.	
Correlational studies	Study the relationship between two or more variables.	Can identify relationships between variables.	Cannot establish cause and effect.	
Experimental studies	Manipulate one or more independent variables to observe their effect on a dependent variable.	Can establish cause and effect relationships.	Can be artificial and not generalizable.	
Surveys	Collect data from a large number of people through questionnaires or interviews.	Can collect data from a large number of people.	Can be biased and not generalizable.	

Table 1.4 Comparison of Psychological Research Methods

	Advantages	Disadvantages
Observational research	Behavior is observed in a natural setting, which increases its external validity and provides the additional benefit of no demand characteristics.	Little or no control is possible; observed behavior may be altered by the presence of the observer; observations may be flawed when observers' expectations influence observations.
Correlational studies	Can measure the existence of relationships; allow predictions to be made in light of these relationships.	Little or no control is possible; relationships may be confounded; cause and effect relationships cannot be established.
Experimental studies	Can use controlled experimental settings that provide controlled observations for causal inferences; usually generalizable.	May be unrealistic, artificial, non-representative; some are easily modified; laboratory field experiments may have demand characteristics.
Case Study	Advantages of "natural clinical trials" and allows investigation of rare or unusual problems or events.	Little or no control is possible; data are usually a product of the researcher; often the researcher is often necessary; a single case may be unrepresentative or ungeneralizable.
Survey	Allows collection of large-scale measures of people or the general population; provides an economical, efficient approach.	Obtaining representative samples is critical; surveys are difficult to conduct and to administer; people may not be truthful or may not know what they do.