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

<table>
<thead>
<tr>
<th>Vary 3 Levels of Noise</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine Heart Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the Heart Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase</td>
<td>stay the same</td>
<td>decrease</td>
<td></td>
</tr>
</tbody>
</table>

- 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 close

Cannot 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.