



Research Methods

How Psychologists Conduct Research

Psychology 470

Introduction to Chemical Addictions

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Methods Used

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

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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

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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

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Disadvantages

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

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Case Study

- Is a major investigation of one unit.
 - The unit can be an:
 - Individual
 - University
 - Town
- Generally, is a detailed study of one individual or thing

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Advantages

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

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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.

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Survey Method

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

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Advantages

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

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Disadvantages

- Survey sample must be representative of the population

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Other Problems

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

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Experimental Method

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

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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

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Dependent Variable

- Is the variable that changes and which you observe

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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

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Independent vs. Dependent

- Thing that you vary is the noise
Independent Variable
- Thing you observe changes in is the heart rate
Dependent Variable

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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.

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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

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Correlational Method

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

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**CORRELATION DOES
NOT
IMPLY CAUSATION**

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Example 1

- Rooster crowing causes the sun to come up

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Example 2

- Ice Cream and Drowning.

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Example 3

- Your Genetics Cause Alcoholism and / or other Disorders.

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Example 4

- Birth Control Pills Cause Breast Cancer

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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.

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Correlations

.9 has a greater relationship than a .4

OR

.3 has less relationship than a .8

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Correlations

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

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Correlations

- SOOOOO
- What does the plus or minus sign tell you?

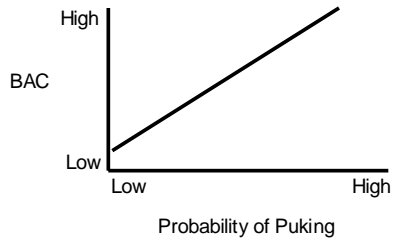
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Positive Correlation

- 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.

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Positive Correlation



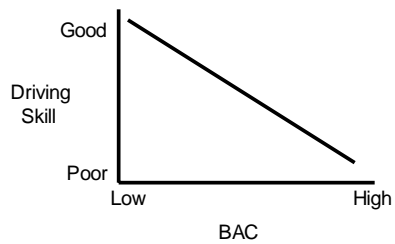
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Negative Correlation

- As one variable increases, another variable decreases.
- As beer consumption increases driving skill decreases.

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Negative Correlation



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Advantages of Correlational Techniques

- 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.

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Disadvantages

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

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REMEMBER

- CORRELATION DOES NOT IMPLY CAUSATION.

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Conclusions

- Lots of methods
- All have advantages and disadvantages
WHEN YOU READ THE PAPER, ASK YOURSELF, WHAT TECHNIQUE DID THEY USE TO DRAW THEIR CONCLUSION
- Often conclusions are drawn based on correlational techniques.