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

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.

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.
Experimental Method

• Most commonly used by all of 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

Independent vs. Dependent

• Thing that you vary is the noise
  Independent Variable

• Thing you observe changes in is the 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 just because two variables are related does not mean that one causes the other.

CORRELATION DOES NOT IMPLY CAUSATION

Example 1

- Rooster crowing causes the sun to come up

Example 2

- Ice Cream and Drowning.

Example 3

- Your Genetics Cause Alcoholism and / or other Disorders.
Example 4

- Birth Control Pills Cause Breast Cancer

Correlations areExpressed 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.

Correlations

- .9 has a greater relationship than a .4
  OR
  .3 has less relationship than a .8

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.
Positive Correlation

- High BAC 
- Low 
- Probability of Puking 

Negative Correlation

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

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.

Disadvantages

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

REMEMBER

- CORRELATION DOES NOT IMPLY CAUSATION.
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.