THE TOOLS OF PSYCHOLOGICAL RESEARCH

CHAPTER 2

LEARNING OBJECTIVES

Understand how best to observe and describe behavior
  • Descriptive research
  • Case studies and surveys
  • Purpose of psychological tests
Describe techniques for predicting behavior
  • Difference between correlation and causation
Describing techniques for explaining behavior
  • Dependent versus independent variables
  • Experimental control
  • Placebo effect
OUTLINE

How do Psychologists know what they know?
Types of Studies

HOW DO PSYCHOLOGISTS KNOW WHAT THEY KNOW?

How do you know that you have a stomach?
HOW DO PSYCHOLOGISTS KNOW WHAT THEY KNOW?

- Authority
- Reason and logic
- Observation

CAN LOGIC GET US RELIABLE AND VALID INFORMATION?

A researcher finds that the mean IQ score of small families is significantly higher than the mean for larger families. Offer possible explanations for this result.
In psychology, experiment means that the investigator is actively manipulating and controlling variables.

- Gold standard of research methods
- Leads us to be more certain about causation

Research is rarely perfect, from start to finish. In fact, most research is the product of a number of decisions.

In psychology, the first step is to develop an operational definition of the main concept under study. This is important because it tells us how you will measure it.

- Sadness
- Stress

**OUTLINE**

How do Psychologists know what they know?

Types of Studies
TYPES OF STUDIES

Descriptive studies – case study

- Intense study of a single individual
- All facets of their life is available including psychological, medical, familial, and social
- Advantage: complete picture and links between factors become apparent.
- Disadvantage: may be idiosyncratic, no way to test a hypothesis.
- Example: Phineas Gage

Descriptive studies – correlational design

- Interviews, surveys that examine individual attitudes and beliefs
- Psychological tests and measures
- Degree of association between 2 variables
- Advantages: large samples of people, can use statistics
- Disadvantages: Costly, imprecise, self-report (validity and reliability issues, confusing, social demands)
- Example: US Census, Exit polls in elections
How to read a correlation coefficient

Indicates direction of relationship (positive or negative)

Correlation coefficient

\[ r = +0.37 \]

Indicates strength of relationship (0.00 to 1.00)

TYPES OF STUDIES: CORRELATION

Correlation of olfactory abilities and cognitive abilities in rats, Wilson et al., 2007
TYPES OF STUDIES: CORRELATION

How would you describe this correlation?

TYPES OF STUDIES: CORRELATION

Raunchy lyrics spur teen sex, study concludes

Research finds those who listen to lots of raucous songs are more likely to try sex

By Karina Bucek
Associated Press

CHICAGO—Tens of thousands of teens who listen to raunchy songs like hip-hop are more likely to start having sex sooner than those who prefer other songs, a study found.

Whether it’s hip-hop, rap, pop or rock, much of popular music aimed at teens contains sexual overtones. Research suggests that exposure to such music can influence their behavior and, as punishment, researchers found, can lead to earlier sexual activity.

Songs depicting sex as “as easy as breathing” and written in an easy manner, with explicit references to sex acts, are more likely to trigger sexual behavior than those where references are more veiled and relationships

CORRELATION OR CAUSATION?
TYPES OF STUDIES

Controlled experimental designs
- Case study and correlational studies are useful but are poor in providing causal information
- Need for control
- Random assignment
- Independent variable – “Causal” variable
- Dependent variable – “Effect” variable
- Controlled variable – “Noise” variable
- Quasi-experimental approach

TYPES OF STUDIES: EXPERIMENTS

- Theory
- Hypothesis: Dependent/Independent variables
- Operational definitions
- Subject selection
- Group assignment: Single/Double blind
- Collect data
- Analyze data
  - Descriptive statistics
  - Inferential statistics
TYPES OF STUDIES: EXPERIMENTS

Independent Variable – manipulated by experimenter
Dependent Variable – measured by experimenter

Example: Does stress cause illness?
Independent variable = stress level
Dependent variable = illness

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**Theory**

- Known: image arousing capacity of words is positively correlated with memory performance
- Does imagery cause better memory? Will people better remember high imagery words?
TYPES OF STUDIES: EXPERIMENTS

- Theory: imagery is important in memory
- Hypothesis: High-imagery words will be better remembered than low-imagery words
- Dependent/Independent variables
- Operational definitions
- Subject selection
- Group assignment: Single/Double blind
- Collect/Analyze data
  - Descriptive statistics, Inferential statistics

TYPES OF STUDIES: EXPERIMENTS

Studying Stress
- Descriptive study – case study
- Descriptive study – correlational study
- Controlled experimental approach
CONTROL

Placebo effect

- Major issue in studying the effects of treatment
- Placebo is an “inert” substance that should not have any effect on the person
- Have an effect that is similar to the “active” ingredient
- In the 18th century, physicians would use the “sugar” pills to help when they no longer had anything else
- Conscious belief that they are getting the active ingredient
- Now found in surgery as well
- How do you control for placebo?

TYPES OF STUDIES: EXPERIMENTS

Belief: “Actively participating in class will kill you.”

- Develop an Experiment:
  - What is your hypothesis and operational definitions
  - Dependent and Independent variables
  - How select subjects?
  - How assign subjects to groups?
  - What procedures will you use?
  - How will you analyze the data?
  - What are the limits of your experiment?
WHICH METHOD WOULD YOU USE?

1. Determining the favorite food of adolescents.
2. Determining whether a person is introverted or extroverted.
3. Determining if frustration causes aggression.
4. Determining if level of education is associated with crime.
5. Determining how teenagers behave on their first date.
6. Determining the behavior of subjects who are anxious about participating in research.
7. Determining why a housewife gave up a flourishing career.

FOR LAB...

Read articles that are on My Wofford:
- Essentials of scientific writing
- Writing in APA style