The Science of Psychology

Major Perspectives in Psychology

- Behavioral
- Psychodynamic
- Cognitive
- Biological (Behavioral genetics, neuroscience, & evolution)
Behavioral

- Focus on external events that influence human behavior.
- Reinforcement and Punishment determines how humans behave.

Psychodynamic

- Internal drives
  - Sex, hunger, survival
- Unconscious desires
- Childhood experiences
- Repressed memories
Cognitive Perspective

- How is knowledge acquired, organized, remembered, and used to guide behavior?
  - Internal structures of the mind
  - Thought patterns
  - Belief systems
  - How you think about the world

Biological Perspective

- Study the physiological mechanisms in the brain and nervous system that organize and control behavior
- Interest in behavior distinguishes biological psychology from many other biological sciences
Practice Exercise

- Identifying Perspectives (in small groups)

Methods in Psychology

- Research designs
  - Descriptive
    - Case study
    - Survey
    - Naturalistic observation
  - Correlational
  - Experimental

- Strengths and Weaknesses?
Descriptive Study

- Describes a set of facts
- Does NOT look for relationships between facts
- Does NOT predict what may influence the facts
- May or may not include numerical data
- Example: measure the % of new students from out-of-state each year since 1980

Types of Descriptive Studies

- When would you choose to do:
  - Naturalistic Observation?
  - Case Study?
  - Surveys?
Correlational Study

- Collects a set of facts organized into two or more categories
  - measure amount of TV violence watched per/day
  - measure children’s aggressive behavior
- Examine the relation between categories
- Correlation reveals relationships among facts
  - e.g., Children who watch more violence on TV behave more aggressively.

Correlational Study

- Correlation cannot prove causation
  - Do does watching violence on TV cause children to behave aggressively?
  - Does behaving aggressively cause children to watch more violence on TV?
- May be an unmeasured common factor
  - e.g., lack of parental involvement leads children to behave more aggressively AND to watch more violence on TV.
Correlation Coefficient

- Measures whether two variables change in a related way
  - Correlations range from -1.0 to 1.0
  - Positive correlation
  - Negative correlation

Illusory Correlation

The perception of a relationship where none exists. Most superstitious behavior...

<table>
<thead>
<tr>
<th>Wear “lucky” socks</th>
<th>Do not wear “lucky” socks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Win Game</td>
<td>Confirming evidence</td>
</tr>
<tr>
<td>Lose Game</td>
<td>Disconfirming evidence</td>
</tr>
</tbody>
</table>
Practice Exercise 2

- Thinking Through Correlations

Experiments

- Direct way to test an hypothesis about a cause–effect relationship between factors
- Factors are called *variables*
  - One variable is controlled by the experimenter
    - Independent variable
  - The other is observed and measured
    - Dependent Variable
Examples of Experimental Variables

- Independent variable
- Dependent variable

Experimental Design

- Population v. Sample
- Types of Samples
  - Random
  - Representative Sample
  - Convenience Sample
Experimental Design

- Random sample
- Random assignment
- Why use randomization?

Practice Exercise 3

- Designing an Experimental Study
Sources of Bias

- Biased sample – when the members of a sample differ in a systematic way from the larger population the researcher is interested in.
  - Example:

Sources of Bias

- Observer–expectancy effect
  - researcher has expectations that influence measurements
    - Confirmation bias

- Subject–expectancy effect
  - subject knows design and tries to produce expected result
    - Halo effect

- Blinding
  - minimizes expectancy by removing knowledge about experimental conditions
Blinding

- Single-blind study
- Double-blind study

Ethical Issues in Psychological Research

- Right to privacy
- Informed consent
- Freedom from harm
- Debriefing