

Chapter 1: Introduction and Research Methods

What is Psychology?

The scientific study of behavior
and mental processes

Philosophical Developments

- A **BIG** Question: How are mind and body related?
- RenéDescartes (1596–1650)—Interactive dualism
- The mind and body interact to produce conscious experience.

Philosophical Developments

- Another **BIG** Question: Nature vs. Nurture
- Are abilities determined by our genes or our experiences?
 - What are the interactions between genetics and environment?
 - What effect does it have on behavior?

Foundations of Modern Psychology

- Separated from philosophy in 19th century
 - influences from physiology remain
- Wilhelm Wundt (1832–1920)
 - Leipzig, Germany
 - established first psychology research laboratory
 - applied laboratory techniques to study of the mind
- Edward Titchener (1867–1927) Wundt's student, professor at Cornell University
 - developed approach called structuralism—involving introspection and studying basic components of conscious experiences.
 - focused on basic sensory and perceptual processes
 - measured reaction times



Wilhelm Wundt (1832–1920)



E. B. Titchener (1867–1927)

Other Pioneers

- William James (1842–1910)
 - started psychology at Harvard in 1870s
 - opposed Wundt and Titchener's approach
 - his ideas shaped school of functionalism – also influenced by Darwin to focus on how behaviors help us adapt to the environment
 - Students included G. Stanley Hall (first Ph.D. in psychology), Mary Whiton Calkins, Margaret Floy Washburn, and Francis C. Sumner

Other Pioneers

- Sigmund Freud (1856–1939)
 - Austrian physician that focused on illness
 - psychoanalytic theory of mental disorders



William James (1842–1910)



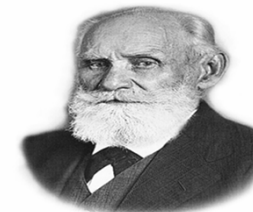
Sigmund Freud (1856-1939)

Schools of Psychology

- Psychoanalysis—personality theory and form of psychotherapy that emphasizes the role of unconscious factors in personality and behavior
- Behaviorism—emphasizes the study of observable behaviors, especially as they pertain to the process of learning
- Humanistic—emphasizes each person's unique potential for psychological growth and self-direction

Key Influences in the Development of Behaviorism

- Ivan Pavlov (1849-1936)
 - Behaviorism grew out of his work with dogs associating a neutral stimulus with an automatic behavior
- John B. Watson (1878–1958)
 - psychologists should study overt behavior
- B. F. Skinner (1904–1990)
 - American psychologist at Harvard
 - studied learning and effect of reinforcement
 - behaviorism



Ivan Pavlov (1849-1936)



John B. Watson (1878–1958)



B. F. Skinner (1904–1990)

Perspectives

- Perspective is a way of viewing phenomena
- Psychology has multiple perspectives
 - Biological
 - Psychodynamic
 - Behavioral
 - Humanistic
 - Positive Psychology
 - Cognitive
 - Cross-Cultural
 - Evolutionary

Biological Perspective

- Study the physiological mechanisms in the brain and nervous system that organize and control behavior
- Focus may be at various levels
 - individual neurons
 - areas of the brain
 - specific functions like eating, emotion, or learning
- Interest in behavior distinguishes biological psychology from many other biological sciences

Psychodynamic Perspective

- View of behavior based on experience treating patients
- Psychoanalytic approach (Sigmund Freud)
 - both a method of treatment and a theory of the mind
 - behavior reflects combinations of conscious and unconscious influences
 - drives and urges within the unconscious component of mind influence thought and behavior
 - early childhood experiences shape unconscious motivations

Behavioral Perspective

- View of behavior based on experience or learning
 - Classical conditioning
 - Operant conditioning

Humanistic Perspective

- Developed by Abraham Maslow and Carl Rogers
 - behavior reflects innate 'actualization'
 - focus on conscious forces and self perception
 - more positive view of basic forces than Freud's



Carl Rogers (1902–1987)



Abraham Maslow (1908–1970)

Cognitive Perspective

- How is knowledge acquired, organized, remembered, and used to guide behavior?
- Influences include:
 - Piaget – studied intellectual development
 - Chomsky – studied language
 - Cybernetics – science of information processing

Cognitive Perspective

- Often referred to as “the cognitive revolution” in psychology, this movement represented a break from traditional behaviorism.

Cross-Cultural Perspective

- The study of cultural effects on behavior and mental processes.
- The study of psychological differences among people living in different cultural groups.
- How are people’s thoughts, feelings and behavior influenced by their culture?
- What are the common elements across culture? Are these innate?

Other Cultural Terms

- Ethnocentrism—the belief that one’s own culture or ethnic group is superior to all others, and the related tendency to use one’s own culture as a standard by which to judge other cultures
- Individualistic cultures—those that emphasize the needs and goals of the individual over the needs and goals of the group
- Collectivistic culture—those that emphasize the needs and goals of the group over the needs and goals of the individual

Evolutionary Perspective

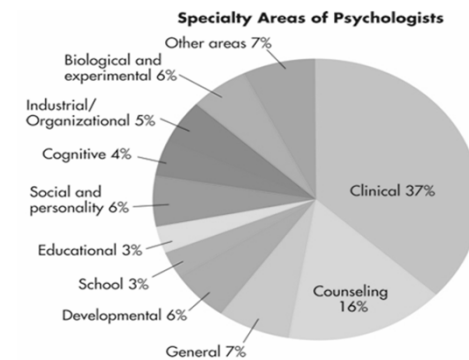
- Influenced by Darwin and the emphasis on innate, adaptive behavior patterns
- Application of principles of evolution to explain behavior and psychological processes

Specialty Areas in Psychology

- Biological
- Clinical
- Cognitive
- Counseling
- Educational
- Experimental
- Developmental
- Forensic
- Health
- Industrial/organizational
- Personality
- Rehabilitation
- Social
- Sports

Similarities and Differences between clinical psychologists and psychiatrists

- Both trained in the diagnosis, treatment, causes, and prevention of psychological disorders
- Clinical psychologists receive doctorate (Ph.D. or Psy.D.)
- Psychiatrists receive a medical degree (M.D. or D.O.) followed by years of specialized training in treatment of mental disorders



The Scientific Method

Goals of Psychology:

- Describe
- Explain
- Predict
- Control

...behavior and mental processes

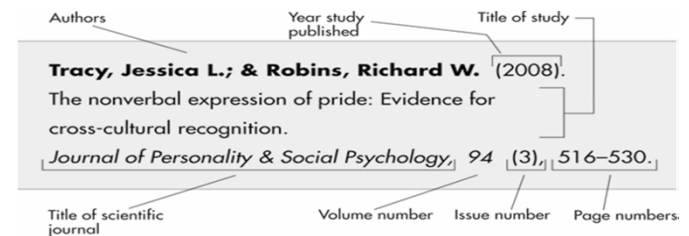
Steps in the Scientific Method

- Formulate testable questions
 - Develop hypotheses
- Design study to collect data
 - Experimental
 - Descriptive
- Analyze data to arrive at conclusions
 - Use of statistical procedures
 - Use of meta-analysis
- Report the findings
 - Publication
 - Replication

Definitions

- Empirical evidence—based upon objective observation, measurement, and/or experimentation
- Hypothesis—tentative statement about the relationship between variables
- Variables—factors that can vary in ways that can be observed, measured, and verified (independent versus dependent)
- Operational definition—precise description of how the variables will be measured

Example of how to report findings



Theory

- Tentative explanation for observed findings
- Results from accumulation of findings of individual studies
- Tool for explaining observed behavior
- Reflects self-correcting nature of scientific method.

Research Strategies

- Descriptive—strategies for observing and describing behavior
 - Naturalistic observation
 - Case studies
 - Surveys
 - Correlational methods
- Experimental—strategies for inferring cause and effect relationships among variables

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 percentage of new students from out-of-state each year since 1980

Naturalistic Observation

- Researchers directly observe and record behavior rather than relying on subject descriptions. In naturalistic observation researcher records behavior as it occurs naturally.

Pseudoscience

- A theory, method, or practice that promotes claims in ways that appear to be scientific despite unresponsive empirical evidence.
- Examples: Magnet therapy
- Based on mostly testimonials, jargon, unfounded, irrefutable claims, and multiple “outs.”

Case Study Method

- Highly detailed description of a single individual
- Generally used to investigate rare, unusual, or extreme conditions

Survey Methods

- Designed to investigate opinions, behaviors, or characteristics of a particular group. Usually in self-report form.

Samples and Sampling

- Population—large (potentially infinite) group represented by the sample. Findings are generalized to this group.
- Sample—selected segment of the population
- Representative sample—closely parallels the population on relevant characteristics
- Random selection—every member of larger group has equal chance of being selected for the study sample

Correlational Study

- Collects a set of facts organized into two or more categories
 - measure parents' disciplinary style
 - measure children's behavior
- Examine the relationship between categories
- Correlation reveals relationships among facts
 - e.g., more democratic parents have children who behave better

Correlational Study

- Correlation cannot prove causation
 - Do democratic parents produce better behaved children?
 - Do better behaved children encourage parents to be democratic?
- May be an unmeasured common factor
 - e.g., good neighborhoods produce democratic adults and well-behaved children

Coefficient of Correlation

- Numerical indication of magnitude and direction of the relationship between two variables
 - Positive correlation—two variables vary systematically in the SAME direction
 - Negative correlation—two variables vary systematically in OPPOSITE directions

Experiments

- Direct way to test a hypothesis about a cause-effect relationship between factors
- Factors are called *variables*
- One variable is controlled by the experimenter
 - e.g., democratic vs. authoritarian classroom
- The other is observed and measured
 - e.g., cooperative behavior among students

Experimental Variables

- Independent variable (IV)
 - the controlled factor in an experiment (i.e. the one you manipulate)
 - hypothesized to cause an effect on another variable
- Dependent variable (DV)
 - the measured facts
 - hypothesized to be influenced by IV

Independent Variable

- Must have at least two levels
 - categories – male vs. female
 - numeric – ages 10, 12, 14
- Simplest is experimental vs. control group
 - experimental gets treatment
 - control does not

Experimental Design

- Random sample—every member of the population being studied should have an equal chance of being selected for the study
- Random assignment—every subject in the study should have an equal chance of being placed in either the experimental or control group
- Randomization helps avoid false results

Sources of Bias

- Expectancy effects—change in DV produced by subject's expectancy that change should happen
- Demand characteristics—subtle cues or signals by the researcher that communicate type of responses that are expected

Control of Bias

- Placebo control group—exposed to a fake IV (placebo), the effects of which are compared to group receiving the actual IV
- Double-blind study—technique in which neither the experimenter nor participant is aware of the group to which participant is assigned

Limitations of Experimental Designs

- Often criticized for having little to do with actual behavior because of strict laboratory conditions.
- Ethical considerations in creating some more “real life” situations.

Naturalistic Experiments

- One way to create a non-invasive “real life” situation is through naturalistic experiments.
- Example is classic study “Does Chronic Exposure to Noise Produce Stress?” (Evans). Levels of stress in children was measured before and after a noisy airport was built within earshot of their elementary school near Munich, Germany. They found that children who were exposed to chronic noise (the IV) showed increased psychological and physical stress (the DV). The control-group children showed little change in stress.

Ethical Guidelines

- Informed consent and voluntary participation
- Students as participants
- Use of deception
- Confidentiality of information
- Information about the study and debriefing

Using Brain Imaging in Psychological Research

- Used for both descriptive and experimental research (Henson, 2005).

Types:

- Positron Emission Tomography (PET)
- Magnetic Resonance Imaging (MRI)
- Functional MRI (fMRI)

Using Animals in Psychological Research

- 90% of psychology research actually uses humans, not animals, as subjects.
- Many psychologists are interested in the study of animal behavior for its own sake (comparative psychology).
- Animal subjects are sometimes used for research that could not feasibly be conducted on human subjects.

Evaluating Media Reports

- Be skeptical of sensationalist claims.
- Goal of “shock” media is ratings.
- Look for original sources.
- Separate opinion from data.
- Consider methodology and operational definitions.
- Correlation is not causality.
- Skepticism is the rule in science.