Chapter 1:
Introduction and Research Materials

Lecture Overview

- Introducing Psychology
- The Origins of Psychology
- The Science of Psychology
- Research Methods
- Getting the Most from Your Study of Psychology
LEARNING OBJECTIVES:
1. Describe seven key guidelines for critical thinking.
2. Describe how scientific psychology differs from pseudopsychologies.
3. Outline psychology’s four main goals.
4. Identify some of the diverse professional roles that psychologists fill.

What is Psychology?

• Psychology
  – Scientific study of behaviour and mental process
  – Places high value on empirical evidence and critical thinking
• Pseudo Psychologies
  – Claim to be scientific
  – No scientific support, empirical evidence or scrutiny

Critical Thinking

• The ability to accurately analyze information and be able to draw rational, fact-based conclusions based on the empirical evidence provided
• Randolf A Smith (2002)
  – Outlined seven essential guidelines for critical thinking
Critical Thinking Guidelines

• Flexible and tolerate ambiguity and uncertainty
  – Scientific discovery is neither linear nor quick
  – Resist urge to neatly compartmentalize

• Can identify inherent biases and assumptions
  – Especially within ourselves

• Sceptical
  – Caution and suspicion when investigating claims
  – “how do you know”

Goals of Psychology

• Description
  – Tells what occurred

• Explanation
  – Tells why a behaviour or mental process occurred

• Prediction
  – Identify conditions under which future behaviours or mental processes will occur

• Change
  – Apply knowledge to prevent unwanted behaviour or to bring about desired goals
Specialization

- Biopsychology or neuroscience
- Clinical psychology
- Cognitive psychology
- Counselling psychology
- Development psychology
- Educational and school psychology

Specialization

- Experimental Psychology
- Forensic psychology
- Gender and/or cultural psychology
- Health psychology
- Industrial/organizational psychology
- Social psychology

The Origins of Psychology

Learning Objectives:
1. Describe the different perspectives represented by the early psychologists.
2. Identify a fundamental difference between the psychoanalytic and behaviourist perspectives.
3. Explain the central idea underlying the biopsychosocial model.
Intellectual Roots

• Wilhelm Wundt (1832-1920)
  – Acknowledged as the “father of psychology”
  – Introspection
    • Monitoring and reporting our inner world or conscious experience
• Edward Titchener
  – Student of Wundt
  – Structuralism
    • Sought to identify the basic building blocks of the mind or structures of the mind through introspection

Intellectual Roots

• William James (1842-1910)
  – Strongly influenced by Darwin
  – Broadened the definition of psychology
• Functionalism
  – Study of how the mind functions to help humans and other animals adapt to their environment
  – Expanded the scope of psychology to include research on emotions and observable behaviours and psychological testing

Intellectual Roots

• Sigmund Freud
  – Believed that behaviour was the result of unconscious processes and unresolved past conflicts
• Psychoanalytic school
  – Based on belief that many psychological problems are caused by conflict between acceptable and unacceptable motives
  – Provided basis for psychoanalysis system of therapy
Intellectual Roots

• John Watson (founder)
  — Rejected introspection and the notion that unconscious forces influence behaviour
• Ivan Pavlov
  — Conditioning explains behaviour in terms of observable environment and observable response
• Behaviourist perspective
  — Emphasizes objective, observable environmental influences on overt behaviour

• BF Skinner (1904-1990)
  — Convinced that behaviourist approaches could be used to shape human and animal behaviour
  — Used basic learning principles to shape human behaviour

• Humanist perspective (1950’s)
  — Stressed free will and self actualization
  — Influential theory of personality and form of psychotherapy
• Carl Rogers and Abraham Maslow
  — All individuals naturally strive to develop and move towards self actualization
Intellectual Roots

- **Cognitive perspective**
  - Emphasizes thoughts, perception and information processing
  - Study how we gather, encode and store information

- **Neuroscientific or biopsychological perspective**
  - Examines behaviour through the lens of genetics and biological processes

- **Evolutionary perspective**
  - Emphasizes natural selection, adaptation and evolution of behaviour and mental processes

- **Sociocultural perspective**
  - Emphasizes social interactions and cultural determinants of behaviour and mental processes
Biopsychosocial Model

- Integrative, unifying theme
- Views biological processes, psychological factors and social forces as interrelated inseparable influences
- Complex behaviours and mental processes require complex explanations
- Most psychologists do not adhere to one single perspective

The Science of Psychology

Learning Objectives
1. Compare the fundamental goals of basic and applied research
2. Describe the scientific method
3. Identify how psychologists protect the rights of human and non-human research participants and psychotherapy clients
4. Explain why research with non-humans is valuable
5. Explain why plagiarism is unacceptable and ethically wrong
Research

- **Basic research**
  - Conducted to advance scientific knowledge rather than for practical application
  - Meets the first three goals of psychology
- **Applied research**
  - Research designed to solve real-world problems
  - Meets the fourth goal of psychology

The Scientific Method

- Systematic orderly procedure for understanding and learning about the world
- Seven steps
  - Literature review
  - Operationally defined hypothesis
  - Research design
  - Statistical analysis
  - Peer-reviewed scientific journal
  - Theory
Ethical Guidelines

• Canadian Psychological Association
  — Largest professional organization of psychologists in Canada
• Four ethical principles
  — Respect the dignity of all people
  — Provide responsible caring
  — Demonstrate integrity in relationships
  — Be responsible to society

Rights of Human Participants

• Informed consent
  — Participants prior agreement to take part in a study after being told what to expect
• Debriefing
  — Informing participants after a study about the purpose of the study, the nature of the anticipated results and any deception used
• Research ethics board review
  — Required for any research conducted at a college, university or other reputable institution

Rights of Non-Human Participants

• Non-human research has made significant contributions to almost every area of psychology
• Canadian Council for Animal Care
  — Provides clear guidelines for the use of animals in research, testing and teaching
  — Requires testing research against the three R’s
    • Reduce the number of animals used
    • Replace animals with other types of research models
    • Refine experiments to reduce suffering and discomfort
Rights of Psychotherapy Clients

- Therapists must also maintain the highest of ethical standards and uphold their client’s trust
- All personal information confidential, released only to authorized persons with the client’s permission
- Balanced against the needs of society

Plagiarism

- In most academic and artistic arenas, published work is part of the individual’s intellectual property
- Must be credited or acknowledged
- Plagiarism
  - A form of academic dishonesty in which a person takes credit for the work or ideas of others

Help versus Harm

- Psychology as a discipline has done a great deal to improve the quality of life
- It has also inadvertently harmed people
  - IQ tests have served many valid purposes
  - Also misused to legitimize racial and cultural bigotry
- Psychology is a discipline that is self-critical and does attempt to undo harm
1. Explain why only experiments can identify the cause and effect underlying particular patterns of behaviour and mental processes.

2. Differentiate the independent variable from the dependent variable.

3. Describe the three types of descriptive research.

4. Explain how correlational research identifies relationships between variables.

5. Explain what is meant by the statement “correlation is not causation.”

6. Identify some important research methods used in biological studies.

**LEARNING OBJECTIVES:**

- Experimental research
  - Manipulation and control of variables
- Descriptive research
  - Naturalistic observation, surveys, case studies and laboratory observation
- Correlational research
  - Statistical analyses of relationships between variables
- Biological research
  - Studies of the brain and other parts of the nervous system
Experimental Research

- Determines cause and effect
- Attempts to isolate and examine a single factor’s effect on a particular behaviour
- **Independent variable (IV)**
  - Variable that is manipulated by the researcher to determine its effect on the dependent variable
- **Dependent variable (DV)**
  - A variable that is measured, it is affected by manipulation of the independent variable

Variables

<table>
<thead>
<tr>
<th>Differentiating the independent variable from the dependent variable</th>
<th>Table 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Independent variable</td>
</tr>
<tr>
<td>DV</td>
<td>Dependent variable</td>
</tr>
</tbody>
</table>

- Does TV increase aggression?
- **Experimental group**
  - Receives experimental manipulation
  - Watch violent TV shows
- **Control group**
  - Treated same way but do not receive the manipulation
  - Watch same amount of TV but non-violent shows
**Sources of Error**

- Extraneous variables (time of day, lighting, age, sex, etc) must be held constant between groups
- Confounding variables
  - Nuisance variables that can affect the outcome of the study and lead to erroneous conclusions
  - May be an unintentional response from the experimenter

**Controlling for Bias**

- **Bias**
  - When the experimenter allows their beliefs and expectations to influence participant responses
- **Controlling for bias**
  - Objective data collection methods
  - Blinding
  - Randomization
  - Participant anonymity

**Blinding**

- Single-blind study: The participant knows who is in the experimental group, but the experimenter does not.
- Double-blind study: Neither the participant nor the experimenter know who is in which group.
Randomization

- **Sample bias**
  - Sample of participants does not accurately reflect the composition of the larger population

- **Random selection**
  - Everyone in the population of interest has an equal chance of being in the sample

- **Random assignment**
  - Everyone selected to be in the study has an equal chance of being in either group

Descriptive Research

- Systematic and scientific observation of **behaviour**
  - Does not produce causal explanations
  - Most of the problems and safeguards associated with experimental research still apply

- **Key types**
  - Naturalistic observation
  - Laboratory observation
  - Surveys
  - Case studies

Naturalistic Observation

- Researchers systematically measure and record subject’s **behaviour**
- No attempt to manipulate the environment
Naturalistic Observation

- Advantages
  - Researchers can obtain data about natural **behaviour** as opposed to artificial reactions in an experimental setting
- Disadvantages
  - Difficult and time-consuming
  - Lack of controls

Laboratory Observation

- Observation of **behaviour** in a controlled setting
  - Behaviour is generally observed while hidden from view
  - Much more controlled

Surveys

- Measure a variety of **behaviours**
- Advantages
  - Can gather data from a large number of people
- Disadvantages
  - Most rely on self-reported data
  - **Volunteer effect**
    - People who volunteer for a survey may not be representative of the greater population
Case Studies

• In-depth studies of a single research participant
• Done when it is difficult to find a population group to study
• Rare disorders or phenomena
• Limitations
  – Lack of generalizability
  – Inadvertent bias

Correlational Research

• Determines what the degree of relationship is between two variables
• Measure participant responses on variables of interest
• Utilize statistical formula to determine the correlation coefficient
  – Strength of the relationship
  – Direction of the relationship

Types of Correlation

• Positive correlation
  – Two variables move or vary in the same direction, either up or down
• Negative correlation
  – Two variables move or vary in the opposite direction, either up or down
• Zero correlation
  – No relationship between the two variables
Types of Correlation

- **Correlation does not mean Causation**
  - **Correlational research**
    - Helps us to make predictions about relative risks and fosters more informed decisions
    - Allows people to live safer more productive lives
  - Correlation does not mean that one variable causes another
    - Sometimes point to possible causes
    - Require more controlled research

Biological Research

- Studies the brain and other parts of the nervous system
- Development
  - Early dissections of the brains of cadavers and study on other animals using lesioning techniques
  - By the mid nineteenth century, research had produced a rudimentary map of the nervous system
  - Recent advances have led to a variety of brain imaging techniques
### Tools for Studying the Brain

- Brain dissection
- Ablation or lesions
- Observation and case studies
- Electrical recordings
- Electrical stimulation of the brain
- CT scan
  - Computed tomography
- PET scan
  - Positron emission tomography
- MRI scan
  - Magnetic resonance imaging
- fMRI
  - Functional MRI
- TMS
  - Transcranial magnetic stimulation
LEARNING OBJECTIVES

1. Describe the steps you can take to read more accurately
2. Explain how visual features can enhance learning
3. Examine your current time management habits and identify how you might improve them
4. Explain the benefits of distributed study and overlearning
5. Summarize the grade improvement and test-taking strategies that you can use to ensure success in your courses

Techniques to Work Smarter

- Familiarization
- Active reading
- Visual learning
- Time management
- Distributed study
- Overlearning

Familiarization

- Step one is to familiarize yourself with the general text
- Look at the Preface, Table of Contents, Glossary and Subject Index
- Scan the book
- Take note of the tables, figures, photographs and special feature boxes
Active Reading

- **SQ4R method** of active reading
  - Survey
  - Question
  - Read
  - Recite
  - Review
  - Write

Visual Learning

- Our brains are highly tuned to visual as well as verbal cues
- Take advantage of the text’s visual features
**Time Management**

- **Establish a baseline**
  - Record your day-to-day activities before you start for one to two weeks
- **Set up a realistic schedule**
  - Make a daily and weekly to-do list
  - Include all required tasks
  - Then create a daily schedule

---

**Time Management**

- **Reward yourself**
  - Give yourself immediate rewards for sticking with your daily schedule
- **Maximize your time**
  - Minimize the time you spend “fretting and prepping”
  - Focus on the actual study time
  - Take advantage of hidden opportunities

---

**Distributed Study**

- Spaced practice is a much more efficient way to study and learn
- Learn more from distributing your study over time
- As opposed to “cramming”
Overlearning

- Work to understand new material more deeply
- Learn how key terms and concepts relate to each other
- Review material by visualizing the phenomena
- Rehearse what you have learned

Improving Grades

- Take good notes
  - Depends on active listening
  - Write down key ideas and supporting details/examples
- Understand your professor
  - Amount of time spent on various topics is usually a good indication of what the professor deems important

Improving Grades

- General test taking
  - Read each multiple choice question and all alternate answers carefully before answering
- Skills courses
  - Take additional study skills courses
  - Keyboarding, writing, etc
- Additional resources
  - Instructors, roommates, family, friends, etc
Multimedia

**Videos**

- Student Drinking (1:13)
  -There are new concerns about college students hitting the bottle instead of the books. As this ScienCentral News video reports, researchers say the problem could be bigger than previous studies indicated because the drinks are getting bigger.

- Watching the Brain (1:33)
  -For the first time, scientists can watch individual brain cells in living animals for long periods of time.

- Wiring the Brain (1:18)
  -Interested in continuing education? Here’s some good news. As this ScienCentral News video reports, brain researchers have uncovered one mechanism that controls how our brains make new connections.

- Imaging Antidepressant Accuracy (1:27)
  -A simple one-hour brain scan could predict who will respond to an antidepressant and who will not.

- Alzheimer’s Scans (1:28)
  -A new 3-D time-lapse video technique is helping neuroscientists see the progression of Alzheimer’s disease in patients’ brains for the first time. As this ScienCentral News video reports, it will help in early diagnosis and intervention.

**Copyright**

Copyright © 2013 John Wiley & Sons Canada Ltd. All rights reserved. Reproduction or translation of this work beyond that permitted by Access Copyright (The Canadian Copyright Licensing Agency) is unlawful. Requests for further information should be addressed to the Permissions Department, John Wiley & Sons Canada, Ltd. The purchaser may make back-up copies for his or her own use only and not for distribution or resale. The author and the publisher assume no responsibility for errors, omissions, or damages caused by the use of these programs or from the use of the information contained herein.