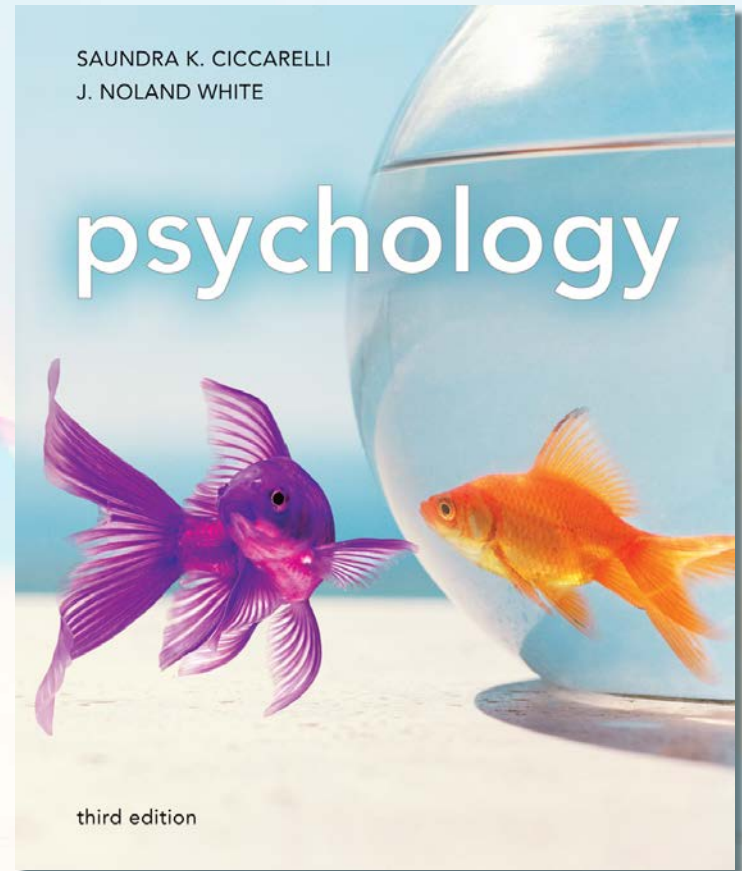


psychology

third edition

CHAPTER 1

the science of psychology



Learning Objectives

- LO 1.1 Definition and goals of psychology
- LO 1.2 Structuralism and functionalism
- LO 1.3 Early Gestalt, psychoanalysis, and behaviorism
- LO 1.4 Modern perspectives Skinner, Maslow and Rogers
- LO 1.5 Psychiatrist, psychologist, and other professionals
- LO 1.6 Psychology is a science; steps in scientific method
- LO 1.7 Naturalistic and laboratory settings
- LO 1.8 Case studies and surveys
- LO 1.9 Correlational technique
- LO 1.10 Experimental approach and terms
- LO 1.11 Placebo and the experimenter effects
- LO 1.12 Conducting a real experiment
- LO 1.13 Ethical concerns in conducting research
- LO 1.14 Principles of critical thinking

What is Psychology?

LO 1.1 Definition and goals of psychology

- Psychology - scientific study of behavior and mental processes.
 - Behavior - outward or overt actions and reactions.
 - Mental processes - internal, covert activity of our minds.

Psychology is a Science

LO 1.1 Definition and goals of psychology

- Prevent possible biases from leading to faulty observations
- Precise and careful measurement

Psychology's Four Goals

LO 1.1 Definition and goals of psychology

- **Description**
 - What is happening?
- **Explanation**
 - Why is it happening?
 - Theory - general explanation of a set of observations or facts

Psychology's Four Goals

LO 1.1 Definition and goals of psychology

- Prediction
 - Will it happen again?
- Control
 - How can it be changed?

Structuralism

LO 1.2 Structuralism and functionalism

- Structuralism
 - Focused on structure or basic elements of the mind.

Structuralism

LO 1.2 Structuralism and functionalism

- Wilhelm Wundt's psychology laboratory
 - Germany in 1879
 - Developed the technique of objective introspection – process of objectively examining and measuring one's thoughts and mental activities.

Structuralism

LO 1.2 Structuralism and functionalism

- Edward Titchener
 - Wundt's student; brought structuralism to America.
- Margaret Washburn
 - Titchener's student; first woman to earn a Ph.D. in psychology.
- Structuralism died out in early 1900s.

Functionalism

LO 1.2 Structuralism and functionalism

- Functionalism
 - How the mind allows people to adapt, live, work, and play.
- Proposed by William James.
- Influenced the modern fields of:
 - Educational psychology
 - Evolutionary psychology
 - Industrial/organizational psychology

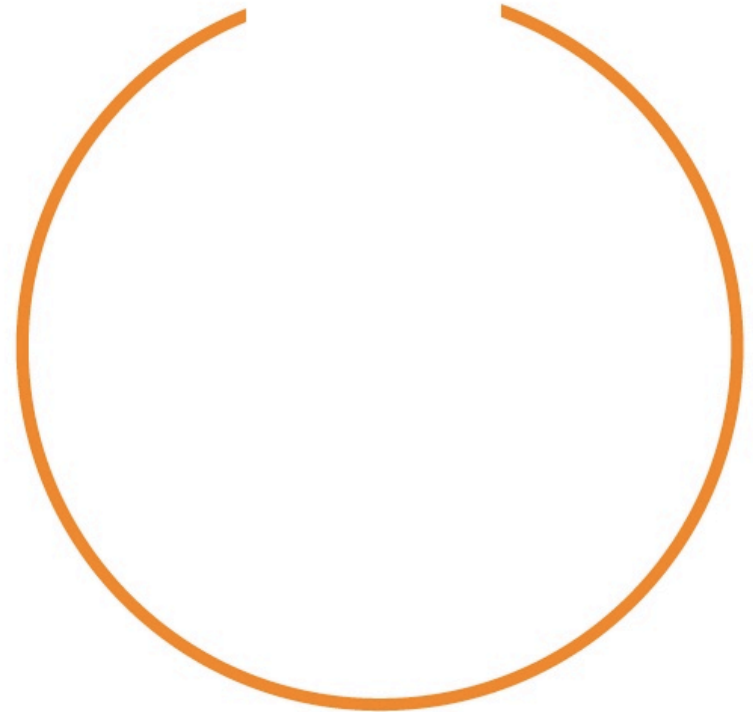
Gestalt Psychology

LO 1.3 Early Gestalt, psychoanalysis, and behaviorism

- Gestalt
 - “good figure” psychology.
- Started with Wertheimer, who studied sensation and perception.
- Gestalt ideas are now part of the study of cognitive psychology, a field focusing not only on perception but also on learning, memory, thought processes, and problem solving.

Figure 1.1 A Gestalt Perception

The eye tends to “fill in” the blanks here and sees both of these figures as circles rather than as a series of dots or a broken line.



Psychoanalysis

LO 1.3 Early Gestalt, psychoanalysis, and behaviorism

- Psychoanalysis - the theory and therapy based on the work of Sigmund Freud.
- Freud's patients suffered from nervous disorders with no found physical cause.
 - Freud proposed that there is an unconscious (unaware) mind into which we push, or repress, all of our threatening urges and desires.

Psychoanalysis

LO 1.3 Early Gestalt, psychoanalysis, and behaviorism

- Freud's patients suffered from nervous disorders with no found physical cause.
 - He believed that these repressed urges, in trying to surface, created nervous disorders.
 - Freud stressed the importance of early childhood experiences.

Behaviorism

LO 1.3 Early Gestalt, psychoanalysis, and behaviorism

- Behaviorism
 - The science of behavior that focuses on observable behavior only.
 - Must be directly seen and measured.

Behaviorism

LO 1.3 Early Gestalt, psychoanalysis, and behaviorism

- Proposed by John B. Watson.
 - Based much from work of Ivan Pavlov who demonstrated that a reflex could be conditioned (learned).
 - Watson believed that phobias were learned.
 - Case of “Little Albert” – taught to fear a white rat.

Behaviorism

LO 1.3 Early Gestalt, psychoanalysis, and behaviorism

- Mary Cover Jones an early pioneer in behavior therapy.

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Psychodynamic perspective - modern version of psychoanalysis.
 - More focused on the development of a sense of self and the discovery of other motivations behind a person's behavior than sexual motivations.

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Behavioral perspective
 - B. F. Skinner studied operant conditioning of voluntary behavior.
 - Behaviorism became a major force in the twentieth century.
 - Skinner introduced the concept of reinforcement to behaviorism.

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Humanistic perspective
 - Owes far more to the early roots of psychology in the field of philosophy.
 - Humanists held the view that people have free will, the freedom to choose their own destiny.
 - Early founders:
 - Abraham Maslow
 - Carl Rogers

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Humanistic perspective
 - Emphasized the human potential, the ability of each person to become the best person he or she could be.
 - Self-actualization - achieving one's full potential or actual self.

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Cognitive perspective
 - Focuses on memory, intelligence, perception, problem solving, and learning.
- Sociocultural perspective
 - Focuses on the relationship between social behavior and culture.

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Biopsychological perspective
 - Attributes human and animal behavior to biological events occurring in the body, such as genetic influences, hormones, and the activity of the nervous system.

Modern Perspectives

LO 1.4 Modern perspectives Skinner, Maslow, and Rogers

- Evolutionary perspective
 - Focuses on the biological bases of universal mental characteristics that all humans share.
 - Looks at the way the mind works and why it works as it does.
 - Behavior is seen as having an adaptive or survival value.

Types of Psychological Professionals

LO 1.5 Psychiatrist, psychologist, and other professionals

- **Psychiatrist**
 - A medical doctor who has specialized in the diagnosis and treatment of psychological disorders.
- **Psychoanalyst**
 - Either a psychiatrist or a psychologist who has special training in the theories of Sigmund Freud and his method of psychoanalysis.

Types of Psychological Professionals

LO 1.5 Psychiatrist, psychologist, and other professionals

- **Psychiatric social worker**
 - A social worker with some training in therapy methods who focuses on the environmental conditions that can have an impact on mental disorders, such as poverty, overcrowding, stress, and drug abuse.

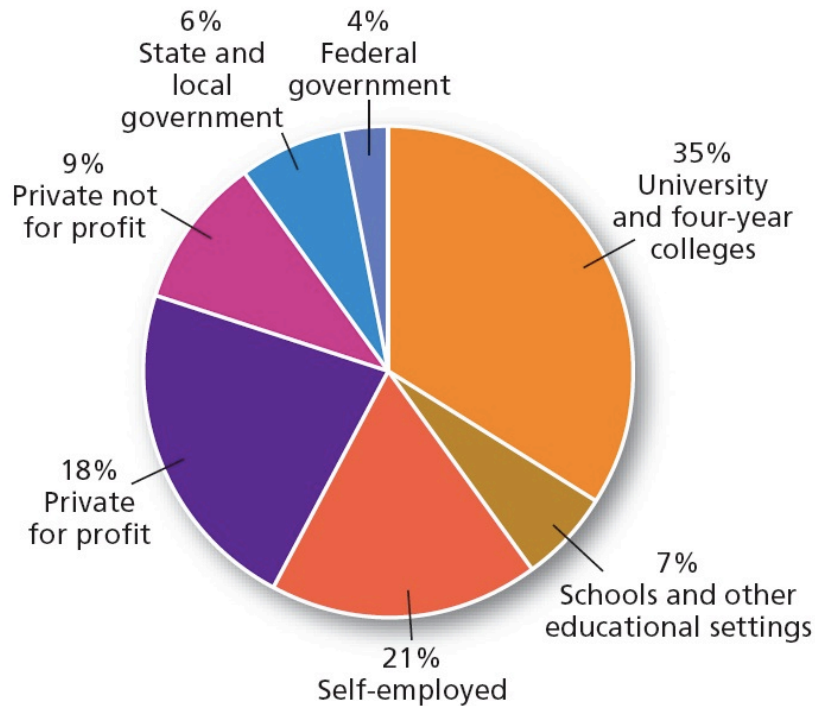
Types of Psychological Professionals

LO 1.5 Psychiatrist, psychologist, and other professionals

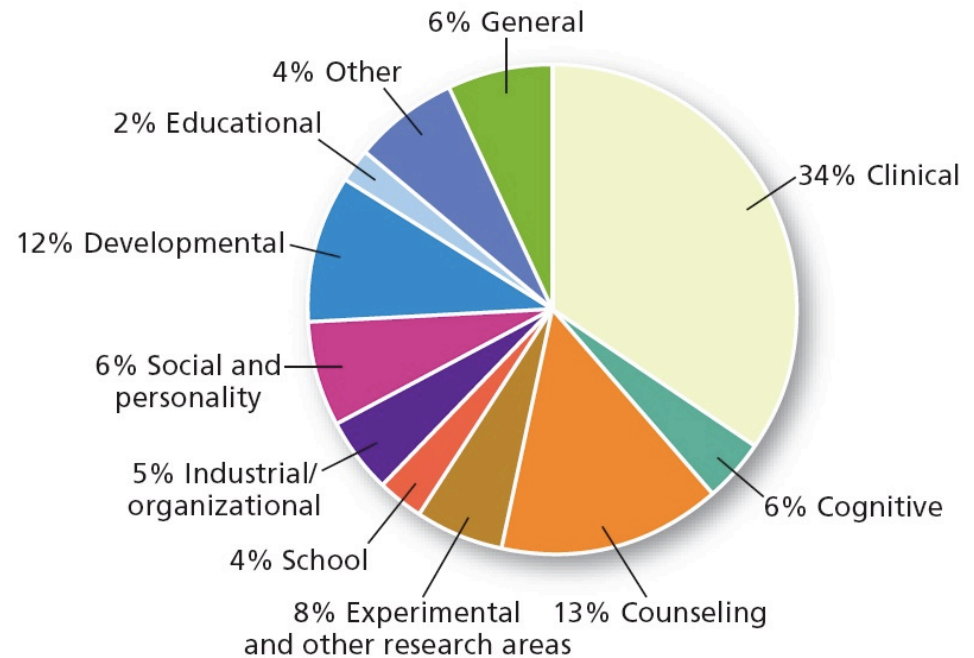
- **Psychologist**
 - A professional with an academic degree and specialized training in one or more areas of psychology.
 - Can do counseling, teaching, and research and may specialize in any one of a large number of areas within psychology.
 - Areas of specialization in psychology include clinical, counseling, developmental, social, and personality, among others.

Figure 1.2 Work Settings and Subfields of Psychology

(a) There are many different work settings for psychologists. Although not obvious from the chart, many psychologists work in more than one setting. For example, a clinical psychologist may work in a hospital setting and teach at a university or college. (Tsapogas et al., 2006) (b) This pie chart shows the specialty areas of psychologists who recently received their doctorates. (Hoffer et al., 2007)



a. Where Psychologists Work



b. Subfields of Psychology

Psychology and the Scientific Method

LO 1.6 Psychology is a science; steps in scientific method

- Scientific method
 - System of gathering data so that bias and error in measurement are reduced.

Psychology and the Scientific Method

LO 1.6 Psychology is a science; steps in scientific method

- Steps in the Scientific Method:
 1. Perceive the question.
 2. Form a hypothesis – tentative explanation of a phenomenon based on observations.
 3. Test the hypothesis.
 4. Draw conclusions.
 5. Report your results so that others can try to replicate - repeat the study or experiment to see if the same results will be obtained in an effort to demonstrate reliability of results.

Descriptive Methods

LO 1.7 Naturalistic and laboratory settings

- Naturalistic observation
 - Watching animals or humans behave in their normal environment.
- Major Advantage:
 - Realistic picture of behavior.

Descriptive Methods

LO 1.7 Naturalistic and laboratory settings

- Disadvantages:
 - Observer effect - tendency of people or animals to behave differently from normal when they know they are being observed.
 - Participant observation - a naturalistic observation in which the observer becomes a participant in the group being observed (to reduce observer effect).

Descriptive Methods

LO 1.7 Naturalistic and laboratory settings

- Disadvantages:
 - Observer bias - tendency of observers to see what they expect to see.
 - Blind observers – people who do not know what the research question is (to reduce observer bias).
 - Each naturalistic setting is unique and observations may not hold.

Descriptive Methods

LO 1.7 Naturalistic and laboratory settings

- Laboratory observation
 - Watching animals or humans behave in a laboratory setting.
- Advantages:
 - Control over environment.
 - Allows use of specialized equipment.

Descriptive Methods

LO 1.7 Naturalistic and laboratory settings

- Disadvantage:
 - Artificial situation that may result in artificial behavior.
- Descriptive methods lead to the formation of testable hypotheses.

Descriptive Methods

LO 1.8 Case studies and surveys

- Case study
 - Study of one individual in great detail.
 - Advantage:
 - Tremendous amount of detail.
 - Disadvantage:
 - Cannot apply to others.
 - Famous case study
 - Phineas Gage.

Descriptive Methods

LO 1.8 Case studies and surveys

- Surveys
 - Researchers will ask a series of questions about the topic under study.
- Given to a representative sample - randomly selected sample of subjects from a larger population of subjects.
- Population
 - The entire group of people or animals in which the researcher is interested.

Descriptive Methods

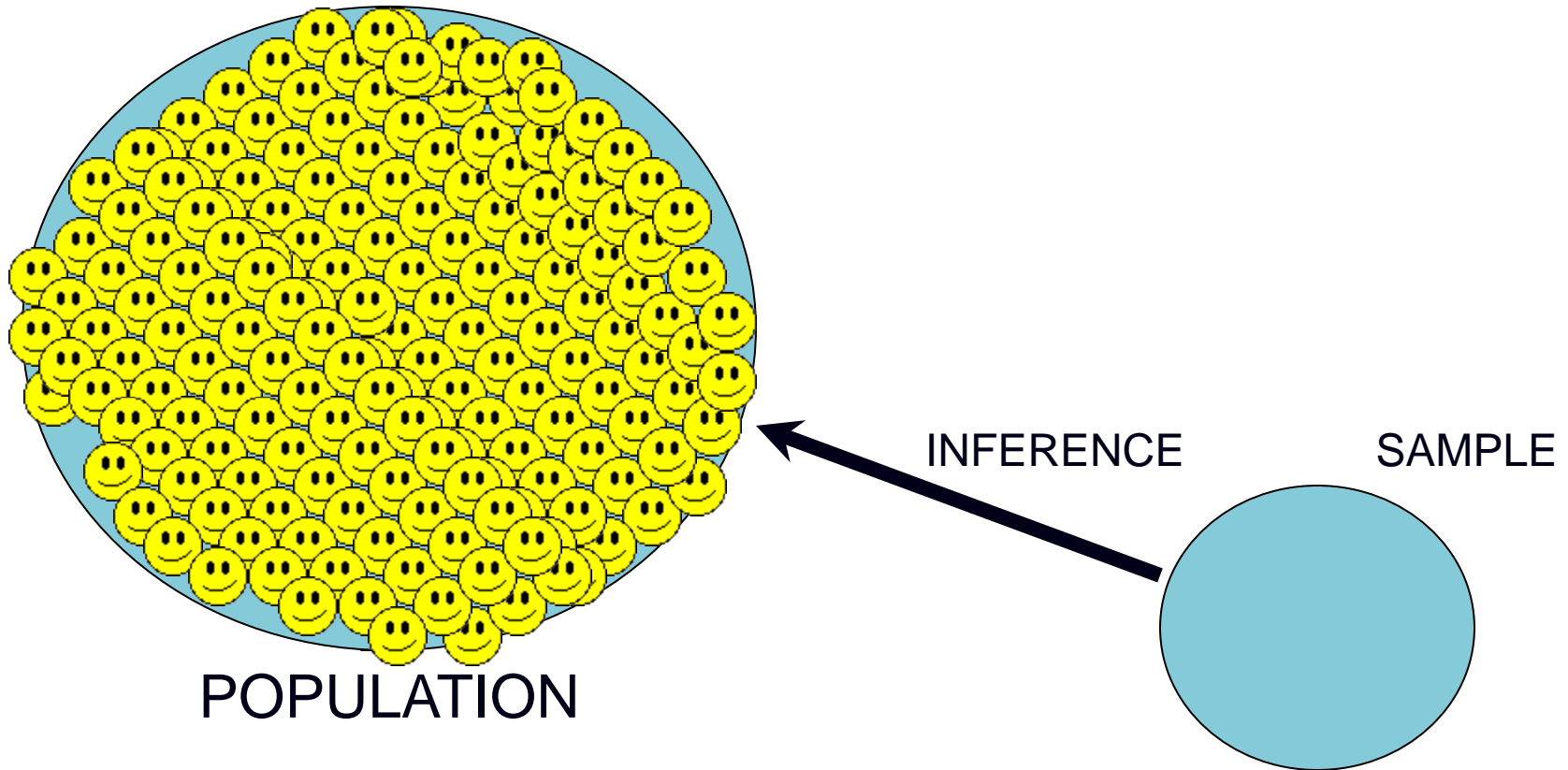
LO 1.8 Case studies and surveys

- Advantages:
 - Data from large numbers of people.
 - Study covert behaviors.
- Disadvantages:
 - Have to ensure representative sample (or results not meaningful).
 - People are not always accurate (courtesy bias).

Descriptive Methods

LO 1.8 Case studies and surveys

- Random Sampling from Population



Finding Relationships

LO 1.9 Correlational technique

- Correlation
 - A measure of the relationship between two variables.
 - Variable
 - Anything that can change or vary.

Finding Relationships

LO 1.9 Correlational technique

- Correlation
 - Measures of two variables go into a mathematical formula and produce a correlation coefficient (r), which represents two things:
 - direction of the relationship.
 - strength of the relationship.
 - Knowing the value of one variable allows researchers to predict the value of the other variable.

Finding Relationships

LO 1.9 Correlational technique

- Correlation coefficient ranges from -1.00 to $+1.00$.
- Closer to 1.00 or -1.00 , the stronger the relationship between the variables.
 - No correlation = 0.0 .
 - Perfect correlation = -1.00 OR $+1.00$.

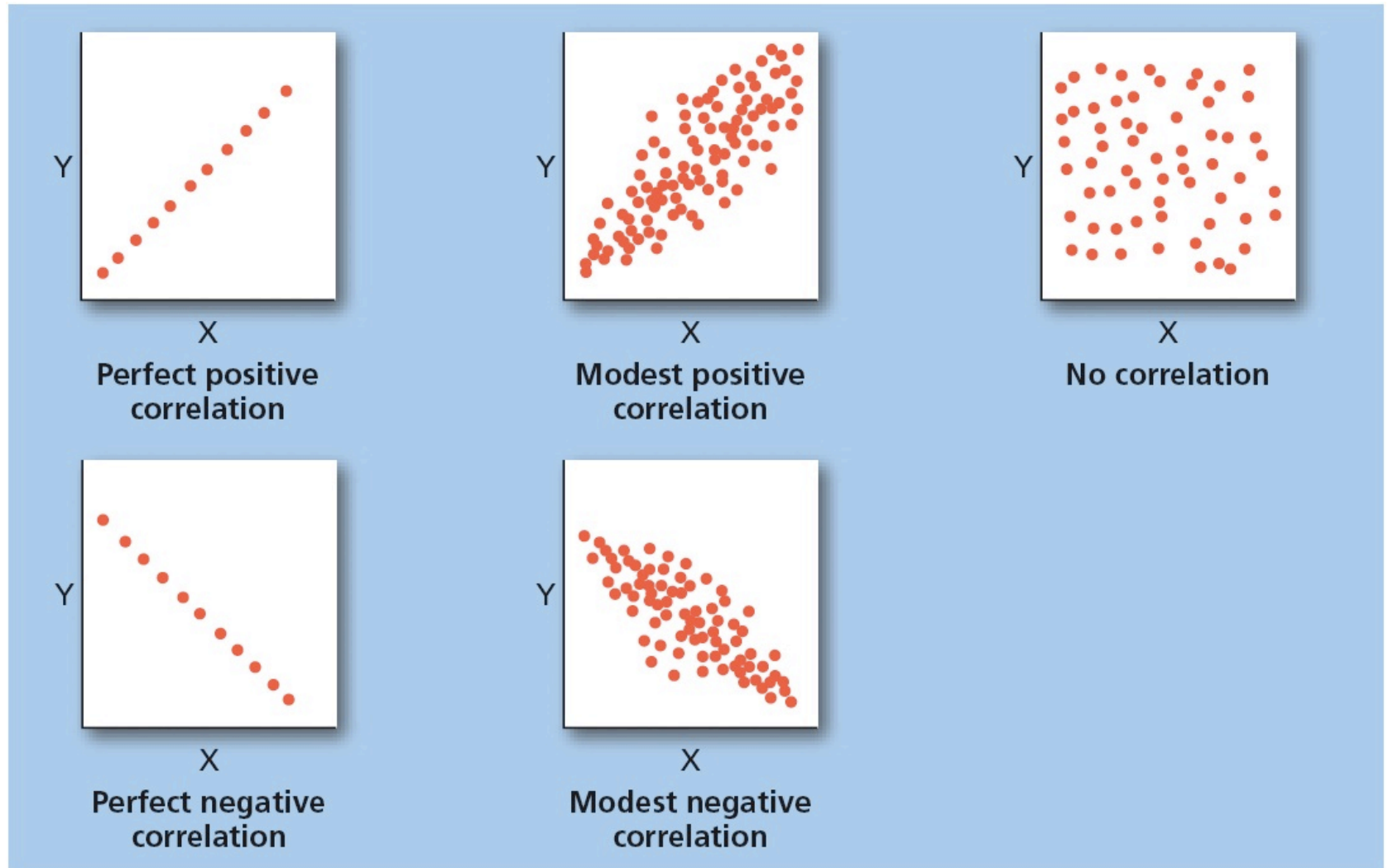
Finding Relationships

LO 1.9 Correlational technique

- Positive correlation – variables are related in the same direction.
 - As one increases, the other increases; as one decreases, the other decreases.
- Negative correlation – variables are related in opposite direction.
 - As one increases, the other decreases.
- CORRELATION DOES NOT PROVE CAUSATION!!!

Figure 1.3 Five Scatterplots

These scatterplots show direction and strength of correlation. It should be noted that perfect correlations, whether positive or negative, rarely occur in the real world.



The Experiment

LO 1.10 Experimental approach and terms

- Experiment
 - A deliberate manipulation of a variable to see if corresponding changes in behavior result, allowing the determination of cause-and-effect relationships.
- Operational definition
 - Definition of a variable of interest that allows it to be directly measured.
 - Definition: Aggressive play

The Experiment

LO 1.10 Experimental approach and terms

- Independent variable (IV)
 - Variable in an experiment that is manipulated by the experimenter.
 - IV: Violent TV
- Dependent variable (DV)
 - Variable in an experiment that represents the measurable response or behavior of the subjects in the experiment.
 - DV: Aggressive play

The Experiment

LO 1.10 Experimental approach and terms

- Experimental group
 - Subjects in an experiment who are subjected to the independent variable.
 - Exp Group: Watch TV

The Experiment

LO 1.10 Experimental approach and terms

- Control group
 - Subjects in an experiment who are not subjected to the independent variable and who may receive a placebo treatment (controls for confounding variables).
 - Control Group: No TV

The Experiment

LO 1.10 Experimental approach and terms

- Random assignment
 - Process of assigning subjects to the experimental or control groups randomly, so that each subject has an equal chance of being in either group.
 - Controls for confounding (extraneous, interfering) variables.

The Experiment

LO 1.10 Experimental approach and terms

- Random Assignment



SAMPLE

Experimental Group



Test for Differences

Control Group

The Experiment

LO 1.10 Experimental approach and terms

- Confounding Variables



SAMPLE

Experimental Group



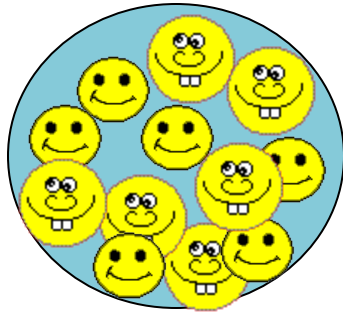
Are differences due to manipulation
or confounding variable (mood)?

Control Group

The Experiment

LO 1.10 Experimental approach and terms

- No Confounding Variables



SAMPLE

Experimental Group



Differences due to manipulation, not an extraneous variable because mood randomly determined.

Control Group

The Experiment

LO 1.11 Placebo and the experimenter effects

- Placebo effect
 - The phenomenon in which the expectations of the participants in a study can influence their behavior.
- Single-blind study
 - Subjects do not know if they are in the experimental or the control group (reduces placebo effect).

The Experiment

LO 1.11 Placebo and the experimenter effects

- **Experimenter effect**
 - Tendency of the experimenter's expectations for a study to unintentionally influence the results of the study.
- **Double-blind study**
 - Neither the experimenter nor the subjects knows if the subjects are in the experimental or control group (reduces placebo effect and experimenter effect).

The Experiment

LO 1.11 Placebo and the experimenter effects

- Quasiexperimental designs
 - Not considered true experiments because of the inability to randomly assign participants to the experimental and control groups (for example, if age is the variable of interest).

Example of a Real Experiment

LO 1.12 Conducting a real experiment

- Hypothesis:
 - Extrinsic (external) reward would reduce creativity.
- Independent variable
 - Two different sets of instructions.
- Dependent variable
 - Creativity on art project as judged by raters blind to the group assignment.

Example of a Real Experiment

LO 1.12 Conducting a real experiment

- Experimental group
 - Instructed to make project to compete for an award (prizes).
- Control group
 - Instructed to make project for fun; prizes would be raffled off.
- Results supported hypothesis:
 - Those competing for extrinsic reward were less creative.

Ethics in Psychological Research

LO 1.13 Ethical concerns in conducting research

- **Ethics committees**
 - Groups of psychologists or other professionals who look over each proposed research study and judge it according to its safety and consideration for the participants in the study.

Ethics in Psychological Research

LO 1.13 Ethical concerns in conducting research

- Common ethical guidelines:
 - Rights and well-being of participants must be weighed against the study's value to science.
 - Participants must be allowed to make an informed decision about participation.
 - Deception must be justified.
 - Participants may withdraw from the study at any time.

Ethics in Psychological Research

LO 1.13 Ethical concerns in conducting research

- Common ethical guidelines:
 - Participants must be protected from risks or told explicitly of risks.
 - Investigator must debrief participants, telling the true nature of the study and expectations of results.
 - Data must remain confidential.

Ethics in Psychological Research

LO 1.13 Ethical concerns in conducting research

- Common ethical guidelines:
 - If for any reason a study results in undesirable consequences for the participant, the researcher is responsible for detecting and removing, or correcting, these consequences.

Ethics in Psychological Research

LO 1.13 Ethical concerns in conducting research

- Animal research
 - Answers questions we could never do with human research.
- Focus is on avoiding exposing them to unnecessary pain or suffering.
- Animals are used in approximately 7% of psychological studies.

Ethics in Psychological Research

LO 1.13 Ethical concerns in conducting research

- These rabbits are part of a drug-testing study. Their bodies are enclosed in the metal cases to prevent movement during the test. What steps might the researchers using these animals take to treat the animals ethically?

Critical Thinking

LO 1.14 Principles of critical thinking

- Critical thinking
 - Making reasoned judgments about claims.

Critical Thinking

LO 1.14 Principles of critical thinking

- Four Basic Criteria:
 1. There are very few “truths” that do not need to be subjected to testing.
 2. All evidence is not equal in quality.
 3. Just because someone is considered to be an authority or to have a lot of expertise does not make everything that person claims automatically true.
 4. Critical thinking requires an open mind.