



PSYCHOLOGY

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Chapter 1: Introduction to the science of psychology

Courtesy Dr. Julie Gralow

LEARNING OBJECTIVES

- LO 1 Define psychology.
- LO 2 Describe the scope of psychology and its subfields.
- LO 3 Summarize the goals of the discipline of psychology.
- LO 4 Identify influential people in the formation of psychology as a discipline.
- LO 5 List and summarize the major perspectives in psychology.
- LO 6 Evaluate pseudo psychology and its relationship to critical thinking.
- LO 7 Describe how psychologists use the scientific method.
- LO 8 Summarize the importance of a random sample.
- LO 9 Recognize the forms of descriptive research.
- LO 10 Explain how the experimental method relates to cause and effect.
- LO 11 Demonstrate an understanding of research ethics.

Presenting Psychology – Part I

WHAT IS PSYCHOLOGY?

Psychology

- Scientific study of behavior and mental processes

Psychologists

- Scientists who work in a variety of fields, all of which include the study of behavior and underlying mental processes. Psychologists can be found in many different fields, from education and government to hospitals and, of course, therapy

Presenting Psychology – Part II

On August, 2010, 33 Chilean miners were trapped deep underground in a mine collapse.

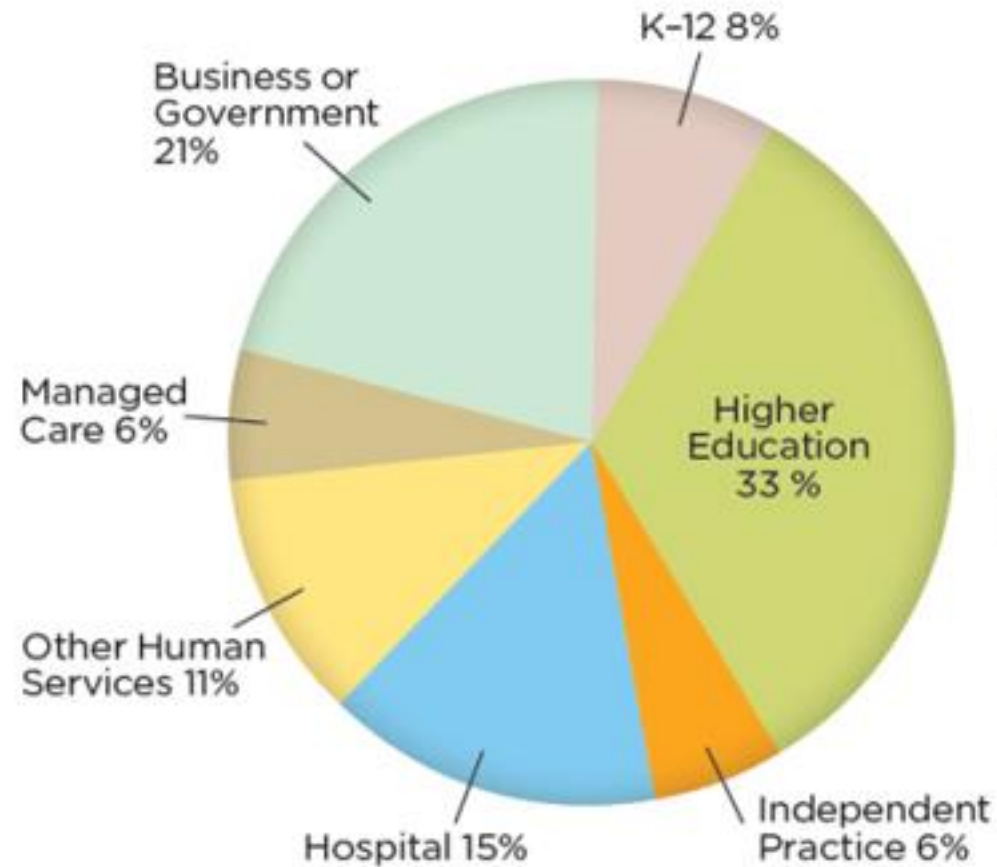


Throughout this chapter, we will see how learning psychology can aid in understanding the plight of these trapped men.

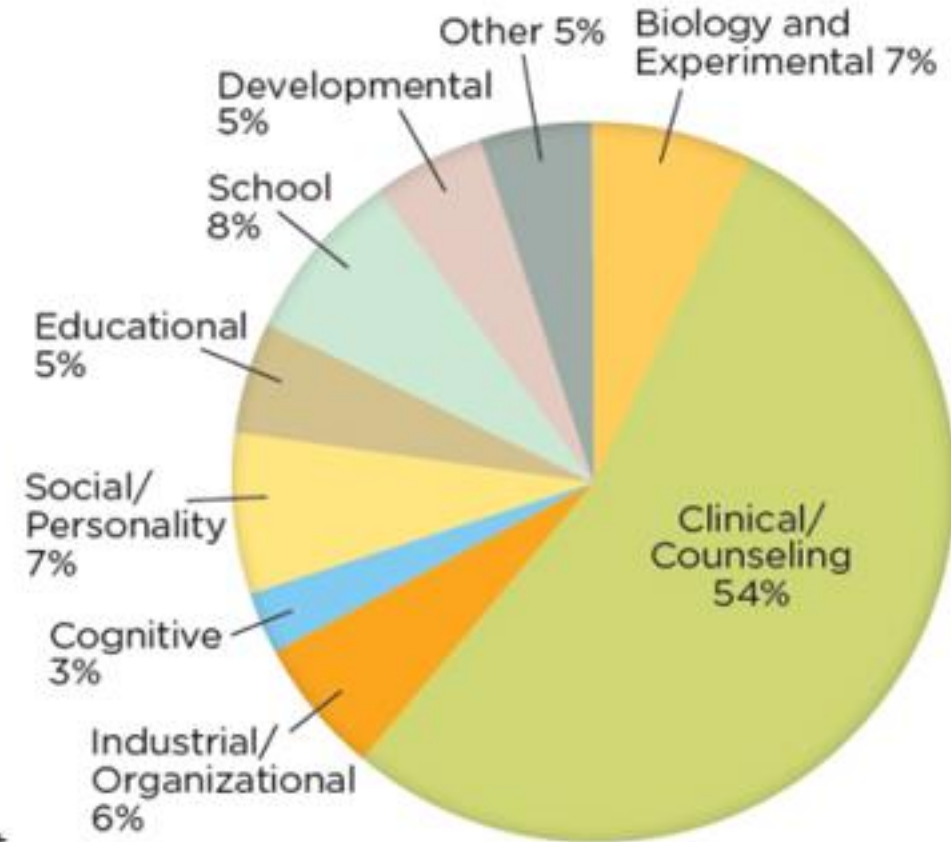
Psychology helps us understand the real world—and ourselves.

Fields of Psychology

Where Psychologists Work



Areas of Specialization



Presenting Psychology – Part III

AREAS OF SPECIALIZATION

The American Psychological Association (APA)

One of the major professional organizations in the field, it has over 50 divisions representing various sub disciplines and areas of interest (APA, 2012a)

The Association for Psychological Science (APS)

Another major professional organization in the field, it offers a list on its website of over 100 different societies, organizations, and agencies that are considered to have some affiliation with the field of psychology. (APS, 2012)

Presenting Psychology – Part IV

SCOPE OF PSYCHOLOGY AND SUBFIELDS

Basic research

- Focuses on collecting data to support or refute theories
- Gathers knowledge for the sake of knowledge

Applied research

- Focuses on changing behaviors and outcomes
- Often leads to real-world applications

Presenting Psychology

DISPELLED: SEVEN “COMMONSENSE” MYTHS – Part I

Myth

- 'Blowing off steam" or expressing anger is good for you.
- Most older people live sad and solitary lives.
- Once you're married and have kids, your sex life goes down the tubes.
- Once you are born, your brain no longer generates new neurons.

Reality

- Unleashing anger actually may make you more aggressive (Lilienfeld, Lynn, Ruscio, & Beyerstein, 2010).
- People actually become happier with age (Lilienfeld et al., 2010).
- According to the Global Sex Survey (2005), people ages 35-44 are having more sex than any other age group.
- Neurons in certain areas of the brain are replenished during adulthood (Eriksson et al.. 1998).

Presenting Psychology

DISPELLED: SEVEN “COMMONSENSE” MYTHS – Part II

Myth	Reality
<ul style="list-style-type: none">■ Listening to Mozart and other classical music will make an infant smarter.■ When people reach 40 years of age, they are bound to have a "midlife crisis."■ People With schizophrenia and Other mental disorders are dangerous.	<ul style="list-style-type: none">■ There is no solid evidence that infants who listen to Mozart are smarter than those who do not (Hirsh-Pasek, Golinkoff, & Eyer, 2003).■ Evidence suggests that only a quarter of middle-aged people hit a breaking point and suffer from such a crisis (Almeida. 2009).■ Only 3-5% Of violent crimes are committed by people with serious mental disorders (Arkowitz & Lilienfeld, 2011).

- Psychological research has debunked many pieces Of commonsense wisdom. including the notion that "opposites attract." Similarity turns Out to a better predictor Of romantic attraction, With studies suggesting that people are more drawn to those with cultural backgrounds, values, and interests resembling their own (Lott g Lott. 1965).

Presenting Psychology – Part V

GOALS OF DISCIPLINE OF PSYCHOLOGY

- **Goals vary by subfield**
- **Common goals**
 - *Describe*: Describe or report what is observed to use this to plan for future research. E.g. Describe the aftereffects of being trapped in a mine for a prolonged period.
 - *Explain*: Organize and understand observations of behaviors in an attempt to develop an explanation for the findings. E.g. If a psychologist determined that health-related changes were associated with the confinement experienced in a submarine, this could help explain the changes in the miners' medical status, although she still would have to conduct a controlled experiment to identify a causal relationship between confinement in a mine and health-related issues.
 - *Predict*: Predict behaviors or outcomes. When we observe behavior patterns, we can make predictions about what will happen in the future. The psychologist could predict that prolonged confinement in another setting (such as a submarine) might lead to the same outcome: sleep deprivation, and therefore decreased immunity.
 - *Control*: Use research findings to shape, modify, and control behavior. Perhaps the researcher could use her findings to help a mining company hire workers who might be better suited to the confining characteristics of mining.

Use these findings to shape, modify, and control behavior

SHOW WHAT YOU KNOW – Part I

1. Psychology is the scientific study of behavior and mental processes.
2. A researcher is asked to devise a plan to help improve behavior in the confined space of subway trains. Based on his research findings, he creates some placards that he believes will modify the behavior of subway riders. This attempt to change behaviors falls under which of the main goals of psychology?
 - a. describe
 - b. explain
 - c. predict
 - d. control

SHOW WHAT YOU KNOW – Part II

3. How is common sense different from the findings of psychology?

If one of your friends says, “I could have told you that!” when you describe the findings of various studies on confinement, how would you respond?

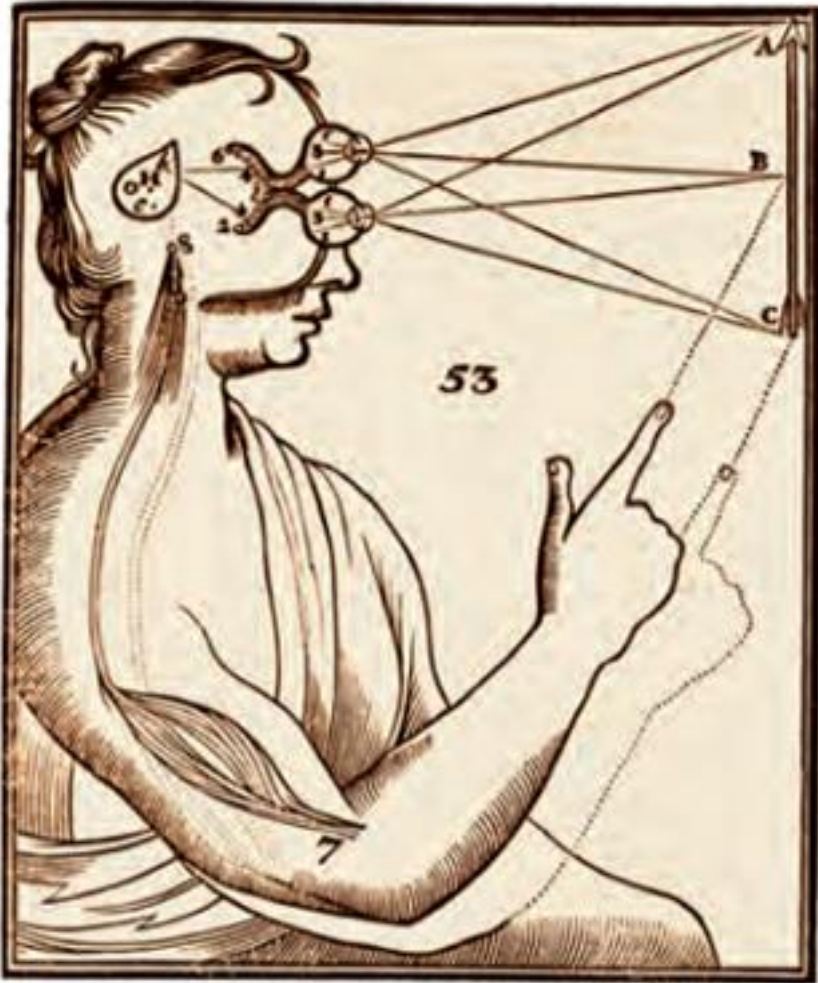
Common sense is a collection of knowledge that any reasonably smart person can pick up through everyday experiences and casual observations. Findings from psychology, however, are based on meticulous and methodological observations of behaviors and mental processes, as well as data analysis. Many people respond to psychological findings with *hindsight bias*, or the feeling as if they knew it all along. If the results of a study seem obvious, someone may feel as if she “knew it all along,” when in reality she wouldn’t have predicted the outcome ahead of time.

Roots, Schools, and Perspectives of Psychology – Part I

PHILOSOPHY AND PHYSIOLOGY

- **Plato (427-347 BCE):** Truth and knowledge exist in the soul before birth; nature contributes to human capacity for cognition. Humans are born with some innate knowledge. Plato raised an important issue psychologists still contemplate: the contribution of *nature* in the human capacity for cognition.
- **Aristotle (384-322 BCE):** Knowledge is a result of our experiences; nurture plays role in knowledge acquisition. Aristotle has been credited with laying the foundation for a scientific approach to answering questions, including those pertaining to psychological concepts such as emotion, sensation, and perception. He paved the way for scientists to study the world through observations. We learn through our sensory experiences, an approach now commonly referred to as *empiricism*.
- **René Descartes (1596-1650):** Discounted Aristotle's ideas, proposing the view of dualism, or the idea that the mind and body are two separate entities. Body and mind interact as separate entities; dualism. Descartes' work allowed for a more scientific approach to examining thoughts, emotions, and other topics previously believed to be beyond the scope of study.
- **Gustav Theodor Fechner (1801-1887):** Connected mind and body by reasoning that in studying our physical ability to sense stimuli we are in fact experimenting on the mind. With this, he laid the foundation for physiological psychology and the groundwork for later research on sensation and perception. We can understand how the body and mind work together by studying sensation. One of the founders of physiological psychology.

Descartes and Dualism



French philosopher René Descartes proposed that the eye and other body parts worked like machines. The mind, he suggested, was separate and intangible. But as you will discover in this textbook, many activities of the mind have already been traced back to physical interactions among nerve cells.

Roots, Schools, and Perspectives of Psychology – Part II



PSYCHOLOGY IS BORN

Wilhelm Wundt (1832-1920)

- “Father of psychology” - founded the first psychology lab in 1879 and the first psychology journal in Germany
- His main objective was to measure psychological processes through introspection, the examination of one’s own conscious activities. He used objective reports
- Wundt’s early experiments was to measure psychological processes through introspection. Introspection involved effortful reflection on the sensations, feelings, and images experienced in response to a stimulus, followed by reports that were *objective*, meaning free of opinions, beliefs, expectations, and values.

In 1861 Wilhelm Wundt conducted an experiment on reaction time, which was a turning point in the field of psychology.

Roots, Schools, and Perspectives of Psychology – Part III

PSYCHOLOGY IS BORN

Edward Titchener (1867–1927)—Developed the school of psychology known as Structuralism

- An early school that used introspection to determine the structure and most basic elements of the mind
- Set up lab at Cornell in 1893 and conducted introspection experiments aimed at determining most basic elements of mind.
- In contrast to Wundt's focus on objective, quantitative reports of conscious experiences, Titchener's participants provided detailed reports of their subjective (unique or personal) experiences.
- Structuralism was regarded as outdated by his contemporaries and it did not last past Titchener

William James (1842–1910)—Developed Functionalism

- Offered the first psychology classes in U.S., at Harvard. Consciousness serves a function and it is important to study the purpose of thought processes, feelings, and behaviors, and how they help us adapt to the environment.
- Inspired by Charles Darwin, developed the school of **functionalism** focusing on the function of thought processes, feelings, and behaviors and how they help us adapt to the environment.
- Although it didn't endure as a separate field of psychology, functionalism has continued to influence the practice of psychology, as evidenced by educational psychology, studies of emotion, and comparative studies of animal behavior.

Try This

The next time your cell phone vibrates or rings, take the opportunity to engage some introspection.

- Grab the cell phone and hold it in your hands (try to resist answering the call).
- Pay attention to what you experience as you wait for the vibrations to stop.
- Then put down the phone and consider your experience.
- Report on your sensations (the color, the shape, the texture, and so on) and feelings (anxiety, excitement, frustration), but make your observations *objective*.

Roots, Schools, and Perspectives of Psychology – Part IV

HERE COME THE WOMEN

Mary Whiton Calkins (1863–1930)

- Denied Ph.D. graduation from Harvard, but established own lab at Wellesley College
- Became first female president of APA

Margaret Floy Washburn (1871–1939)

- Titchener's student and first female to earn a Ph.D. in psychology in 1894 from Cornell university

Mamie Phipps Clark (1917–1983)

- First Black female to be awarded a Ph.D. in psychology from Columbia university; denied faculty position because of gender
- Examined the impact of prejudice and discrimination on child development
- Explored how race recognition impacts a child's self-esteem
- Executive director of the Northside Center for Child Development in upper Manhattan

Roots, Schools, and Perspectives of Psychology – Part V



MAJOR PERSPECTIVES OF PSYCHOLOGY

Psychoanalytic

- *Sigmund Freud (1856-1939)*

- Focused on “abnormal” functioning of mind
- Believed behavior and personality are influenced by the conflict between inner desires (such as sexual and aggressive impulses) and the expectations of society – a clash that occurs for the most part unconsciously or outside of our awareness

Freudian ideas are still alive and well, though people overestimate their importance in psychology. About 90% of American Psychological Association members do not practice psychoanalysis, and most science-minded psychologists have distanced themselves from Freudian notions because they are not supported by solid experimental data.

Roots, Schools, and Perspectives of Psychology – Part V Continues...



Sigmund Freud (1856-1939) Inborn drives – among them the drive of sexual gratification – in channeling human behavior.

Self is a social product

Natural impulsive instincts in constant conflict with societal constraints

Personality influenced by others (especially one's parents)

Self has components that work in opposition to each other

Id - the part of the self that demands immediate gratification

Ego - balances the conflicting needs of the id (pleasure-seeking) and the superego (restraining)

Superego – repository of cultural standards or personal conscience

Unconscious – part of the self that contains repressed memories that we are not normally aware of.

Roots, Schools, and Perspectives of Psychology – Part VI

MAJOR PERSPECTIVES OF PSYCHOLOGY

Behavioral

- **Ivan Pavlov (1849-1936)** *Russian Scientist (Physiologist by training)*
 - He studied canine digestion, began research into learning, and conducted *classical conditioning experimentation*. Dogs in his study learned to salivate in response to stimuli.
- **John B. Watson (1878-1958)** *American Psychologist*
 - Building on Pavlov's research, Watson established behaviorism, which viewed psychology as the scientific study of behavior that could be seen and/or measured. Consciousness, sensations, feelings, and the unconsciousness were not suitable topics of study, according to Watson.
- **B. F. Skinner (1904-1990)** *Behaviorist*
 - Carrying on the behaviorist approach, Skinner studied the relationship between behaviors and their consequences. He focused on operant conditioning which is learning that occurs when behaviors are rewarded or punished. Skinner acknowledged that mental processes such as memory and emotion might exist, but they are not topics to be studied in psychology.

Roots, Schools, and Perspectives of Psychology – Part VII

MAJOR PERSPECTIVES OF PSYCHOLOGY

Humanistic

- *Carl Rogers (1902-1987) and Abraham Maslow (1908-1970)*
Psychologists
 - Founded humanistic psychology which suggested that human nature is essentially positive
 - Posited that people are naturally inclined to grow and change for the better
 - The rise of the humanistic perspective was, in some ways, a rebellion against the rigidity of psychoanalysis and behaviorism

Roots, Schools, and Perspectives of Psychology – Part VIII

MAJOR PERSPECTIVES OF PSYCHOLOGY

Cognitive psychology

- *George Miller (1920-2012)*
 - Researched memory which provided catalyst for cognitive revolution
 - Examines mental processes that direct behavior, focusing on concepts such as thinking, memory, and language.

Cognitive neuroscience

- Explores physiological explanations for mental processes and connections between behavior and the human nervous system, especially the brain
- With the development of brain-scanning technologies, cognitive neuroscience has flourished, interfacing with fields such as medicine, computer science, and psychology.

Roots, Schools, and Perspectives of Psychology – Part IX

MAJOR PERSPECTIVES OF PSYCHOLOGY

Evolutionary

- *Based on Charles Darwin's theory of natural selection*, the process through which inherited traits either increase in frequency because they are adaptive or decrease because they are maladaptive. Based on theory of evolution and principles of natural selection

During times of food scarcity (such as drought), the big-beaked birds are more likely to survive and reproduce because they have a greater variety of seeds from which to choose.

Looking at the finch population during this period, you will see more birds being born with bigger beaks.

Evolutionary psychology looks at a similar process for human traits and behaviors.



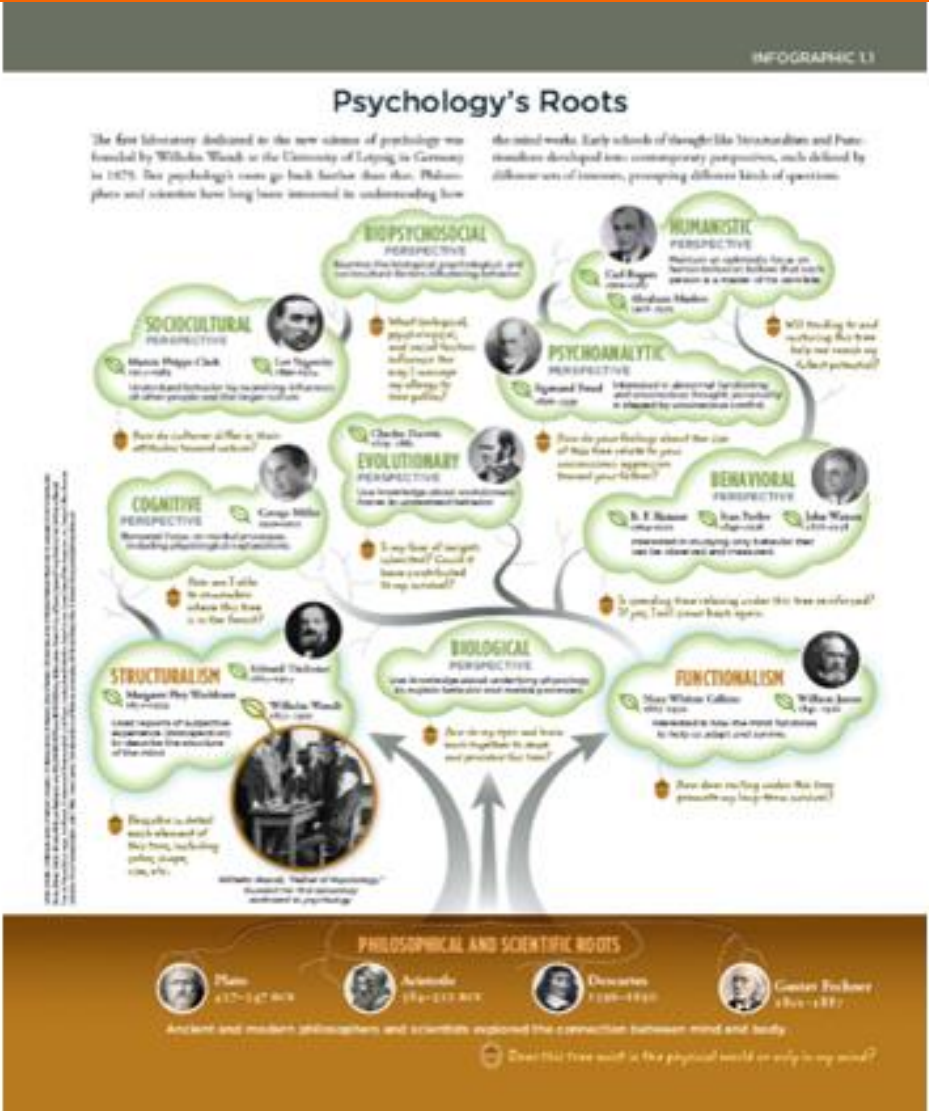
Roots, Schools, and Perspectives of Psychology – Part X

MAJOR PERSPECTIVES OF PSYCHOLOGY

Biological

- Uses knowledge about underlying physiology to explain behavior and mental processes
- Explores how biological factors, such as hormones, genes, and the brain, are involved in behavior and cognition
- Chapter 2 provides a foundation for understanding this perspective

Psychology's Roots



Roots, Schools, and Perspectives of Psychology – Part XI

MAJOR PERSPECTIVES OF PSYCHOLOGY

Sociocultural

- *Lev Vygotsky (1896-1934)*
 - Proposed that we must examine how social and cultural features in children's lives influence their cognitive development
- *Mamie Phipps Clark (1917-1983)*
 - Studied the impact of prejudice, segregation, and discrimination
 - Theorized the importance of sociocultural factors as related to the development of self

Roots, Schools, and Perspectives of Psychology – Part XII

MAJOR PERSPECTIVES OF PSYCHOLOGY

Biopsychological Perspective

- Examines biological, psychological, and sociocultural factors, including behavior
- Suggests these factors are highly interactive: It's not just the convergence of factors that matters, but the way they interact

What do you see in the eyes of miner Florencio Avalos?

The image was captured on August 23, 2010, after the miners had endured over 2 weeks of starvation and isolation. Ho New/Reuters



Current Perspectives in Psychology – Part I

Perspective	Main Idea	Questions Psychologists Ask
<ul style="list-style-type: none">■ Psychoanalytic■ Behavioral■ Humanistic	<ul style="list-style-type: none">■ Illustrates the underlying conflicts that influence behavior.■ Explores human behavior as learned primarily through associations, reinforcers, and observation.■ Focuses on the positive and growth aspects of human nature.	<ul style="list-style-type: none">■ How do our unconscious conflicts affect our decisions and behavior?■ How does learning shape our behavior?■ How do choice and self-determination influence behavior?

Current Perspectives in Psychology – Part II

Perspective	Main Idea	Questions Psychologists Ask
<ul style="list-style-type: none">■ Cognitive■ Evolutionary	<ul style="list-style-type: none">■ Examines the mental processes that direct behavior.■ Examines characteristics in terms of how they influence adaptation to the environment and survival.	<ul style="list-style-type: none">■ How do thinking, memory, and language direct behavior?■ How does natural selection advance our behavioral predispositions?

Current Perspectives in Psychology – Part III

Perspective	Main Idea	Questions Psychologists Ask
<ul style="list-style-type: none">■ Biological■ Sociocultural	<ul style="list-style-type: none">■ Uses knowledge about underlying physiology to explore and explain behavior and mental processes.■ Examines the influences of other people as well as the larger culture to help explain behavior and mental processes.	<ul style="list-style-type: none">■ How do biological factors, such as hormones, genes, anatomy, and brain structures, influence behavior and mental processes?■ How do culture and environment shape our attitudes?

Current Perspectives in Psychology – Part IV

Perspective	Main Idea	Questions Psychologists Ask
<ul style="list-style-type: none">Biopsychosocial	<ul style="list-style-type: none">Investigates the biological, psychological, and sociocultural factors that influence behavior.	<ul style="list-style-type: none">How do the interactions of biology, psychology, and culture influence behavior and mental processes?

Current Perspectives in Psychology – Part V

- Psychologists draw on a variety of theories in their research and practice. Listed above are the dominant theoretical perspectives, all of which reappear many times in this textbook. Human behaviors are often best understood when viewed through more than one theoretical lens.

SHOW WHAT YOU KNOW – Part III

1. Wilhelm Wundt's research efforts all involved _____, which is the examination of one's own conscious activities.
 - a. functionalism
 - b. structuralism
 - c. reaction time
 - d. Introspection

SHOW WHAT YOU KNOW – Part IV

2. Your psychology instructor is adamant that psychologists should only study observable behaviors. She acknowledges consciousness exists, for example, but insists it cannot be observed or documented, so should not be a topic for psychological research. Which perspective is she using?

- a. psychoanalytic
- b. behavioral
- c. humanistic
- d. cognitive

SHOW WHAT YOU KNOW – Part V

3. The process through which inherited traits in a given population either increase in frequency because they are adaptive or decrease in frequency because they are maladaptive is called:

- a. natural selection.
- b. functionalism.
- c. structuralism.
- d. psychology.

4. We have presented eight perspectives in this section.

Describe how two of them are similar to each other. Pick two other perspectives and explain how they differ.

Sociocultural and biopsychosocial perspectives are similar in that both examine how interactions with other people influence behaviors and mental processes. Cognitive and biological perspectives differ in that the cognitive perspective focuses on the thought processes underlying behavior, while the biological perspective emphasizes physiological processes.

Pseudo psychology

- Approach to explaining and predicting behavior and events that appears to be psychology but is not supported by empirical, objective evidence
 - Numerology
 - Astrology

Critical thinking

- Process of weighing various pieces of evidence, synthesizing them (putting them together), and determining how each contributes to the bigger picture

Murder, She Wrote

HANDWRITING ANALYSIS MAY REVEAL DISHONESTY

- Researchers at Haifa University in Israel could tell whether or not students were writing the truth.

HOW?

- Physical properties of handwriting were analyzed.
- Handwriting became more belabored when students lied.

Would you trust this method of lie detection?

SHOW WHAT YOU KNOW – Part VI

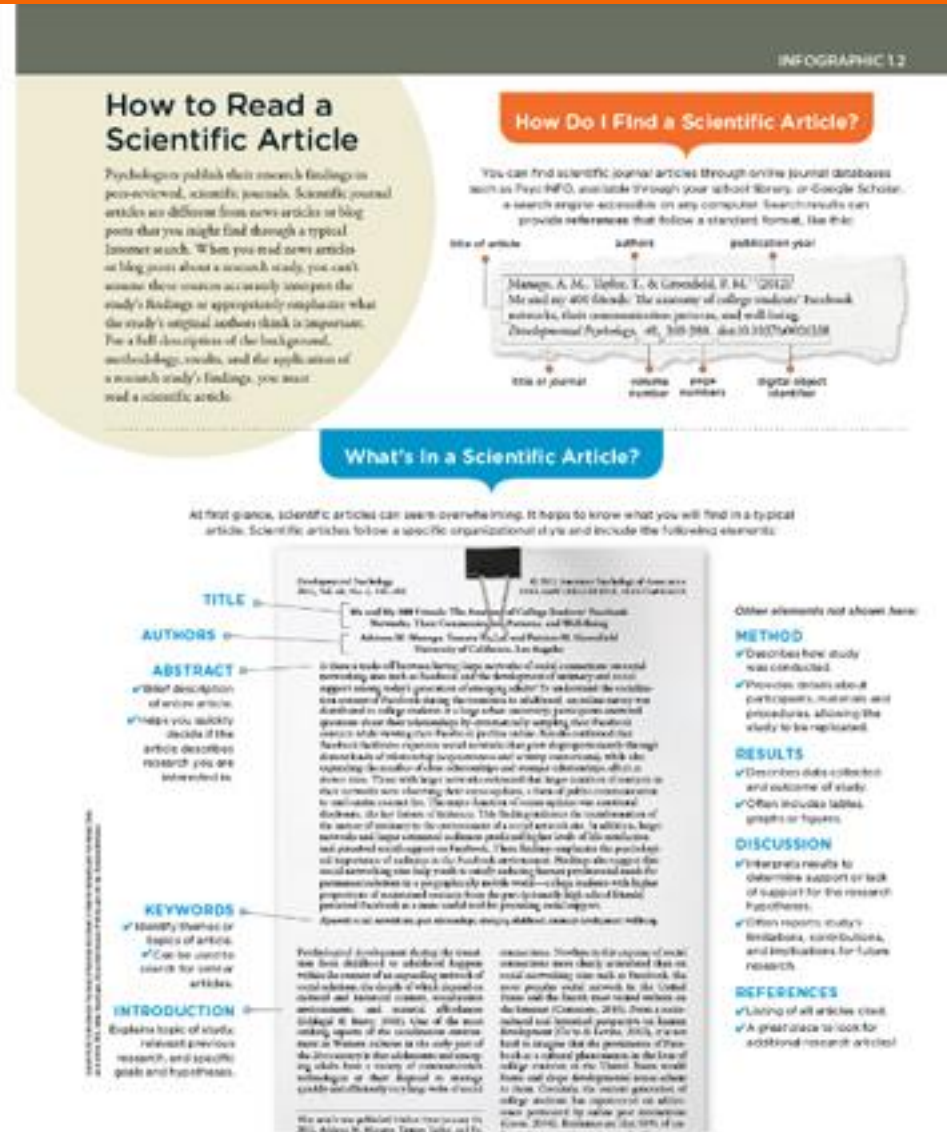
1. An instructor in the psychology department assigns a project requiring students to read several journal articles on a controversial topic. They are then required to weigh various pieces of evidence from the articles, synthesize the information, and determine how the various findings contribute to understanding the topic. This process is known as ____:
 - a. Pseudo theory.
 - b. critical thinking.
 - c. hindsight bias.
 - d. applied research.

SHOW WHAT YOU KNOW – Part VII

2. Pseudopsychology is an approach to explaining and predicting events that appears to be psychology but is not supported by empirical, objective evidence.

3. How would you explain to someone that astrology is a pseudo psychology? Astrology is a great example of pseudopsychology, an approach to explaining and predicting behavior and events that appears to be psychology but lacks scientific support. If you search the scientific literature for empirical, objective studies supporting astrological claims, you will have a very difficult time finding any. Another sign astrology is a pseudoscience is that its predictions are often too broad to refute. Let's say an astrologer predicts that a friend or close family member will soon need your kind words and support. Such a prediction would likely apply to the great majority of people, as family members and friends often look to each other for strength. Such a prediction would always seem to come true, because the probability of its occurrence is almost 100%.

Scientific Article



The Scientific Method – Part I

USING THE SCIENTIFIC METHOD

Scientific method

- Process scientists use to conduct research, which includes a continuing cycle of exploration, critical thinking, and systematic observation. The goal of the scientific method is to provide empirical evidence, or data from systematic observations or experiments.

Experiment

- Controlled procedure that involves careful examination through scientific observation and/or manipulation of variables. Controlled procedure involving scientific observations and/or manipulations by the researcher to influence participants' thinking, emotions, or behaviors. In the scientific method, an observation must be objective, or outside the influence of personal opinion and preconceived notions.

The Scientific Method – Part II

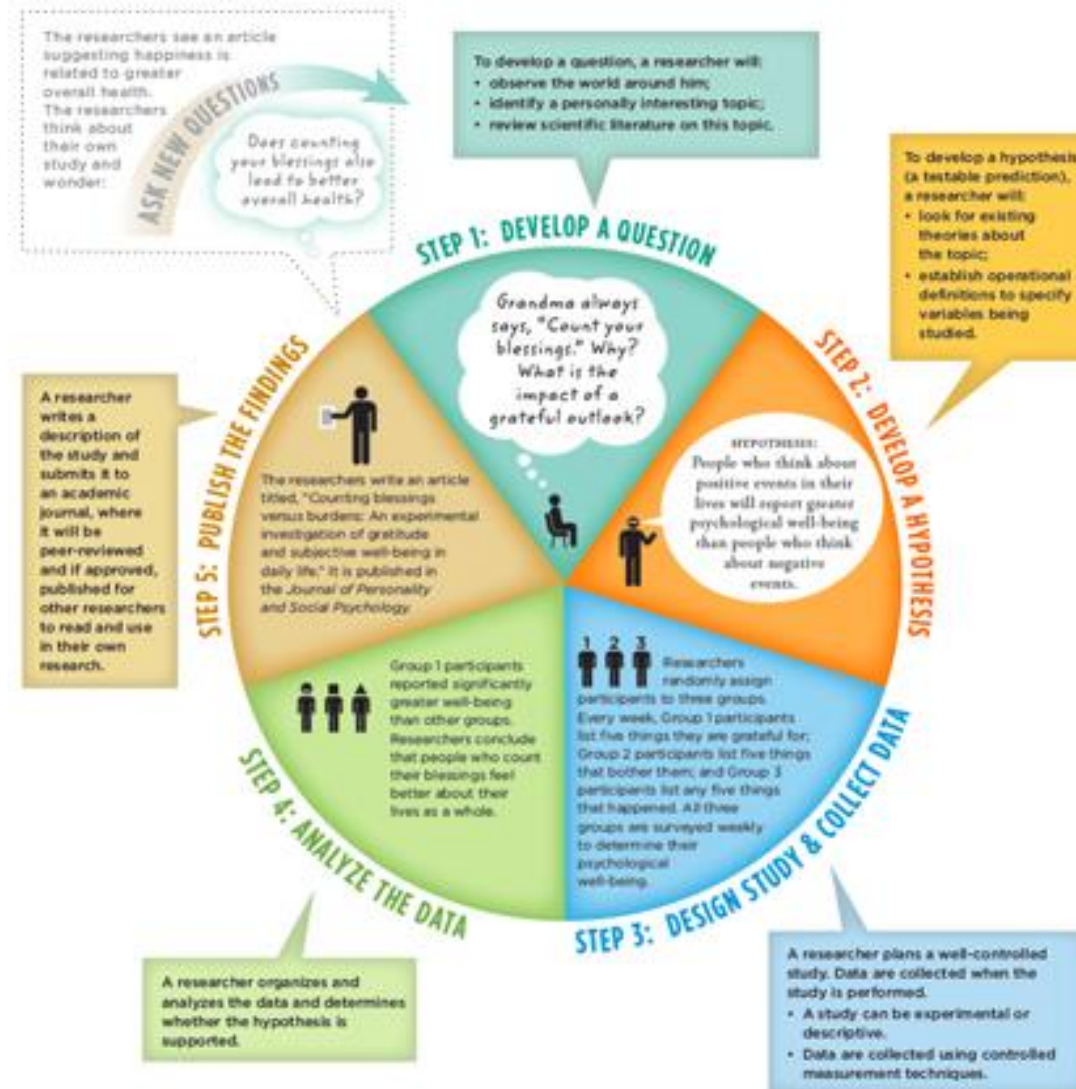
STEPS

- **1. Develop a question:** Will Los 33 experience rates of depression similar to those of other disaster victims, or do their unique circumstances place them in a category all their own?
- **2. Develop a hypothesis:** A statement that can be used to test a prediction: “If we treat half of the survivors from the San José mining disaster with therapy and put the other half on a waiting list for therapy, those on the waiting list will be more likely to receive a diagnosis of depression within 5 years of rescue.”
- **3. Design study and collect data:** Operational definitions specify the precise manner in which the characteristics of interest are defined and measured. For example, using a depression scale to measure the mood of the miners.

The Scientific Method – Part III

- **4. Analyze the data.** The researcher now has data that need to be analyzed, or organized in a meaningful way. In order to make sense of the “raw” data, one must use statistical methods. There are two basic types of statistical analyses. Descriptive statistics are used to organize and present data, often through tables, graphs, and charts. Inferential statistics go beyond simply describing the data set. Using this type of statistical analysis, it is possible to make inferences and determine the probability of events occurring in the future. Did the results support the hypothesis? Were the predictions met? He evaluates his hypothesis, rethinks his theories, and possibly designs a new study based on the analyses.
- **5. Publish the findings.** Writing a scientific article and trying to get it published in a scholarly, peer-reviewed journal. Peer reviewers review the manuscript and make recommendations for publishing, revising, or rejecting the article altogether. Publishing an article is a crucial step in the scientific process because it allows other researchers to replicate the experiment, which might mean repeating it with other participants or altering some of the procedures.
- **6. Ask new questions.**

The Scientific Method – Part III



SHOW WHAT YOU KNOW – Part VIII

1. We all hold opinions about various issues and events in our environments, but how are those opinions different from theories?

An opinion is a belief or attitude that is not based on research, and may completely result from personal experiences, often without any scientific evidence to support it. Theories synthesize research observations and can be used to explain phenomena and make predictions that are testable with the scientific method. Theories are often well-established bodies of principles that rest on a solid foundation of evidence.

2. A researcher identifies affection between partners by counting the number of times they gaze into each other's eyes while in the laboratory waiting room. The cutoff for those who would be considered very affectionate partners is gazing more than 10 times in 1 hour. The researcher has created a(n) _____ of affection.

- a. theory
- b. hypothesis
- c. replication
- d. operational definition

SHOW WHAT YOU KNOW – Part IX

3. A _____ synthesizes observations to try to explain phenomena, and we can use it to help make predictions.

- a. theory
- b. hypothesis
- c. descriptive statistic
- d. peer-reviewed journal

Research Designs – Part I

Research basics

- Variables
- Population
- Sample
- Informed consent
- Debriefing

Let's look more closely at each of these.

BACK TO THE MINE

No psychologist had ever studied human beings in a scenario quite like this. There were no “lessons learned” from past experience, no guidelines to follow, and certainly no research on the subject.

How could the research method be used to help those who were trying to help the miners?

Research Designs – Part II

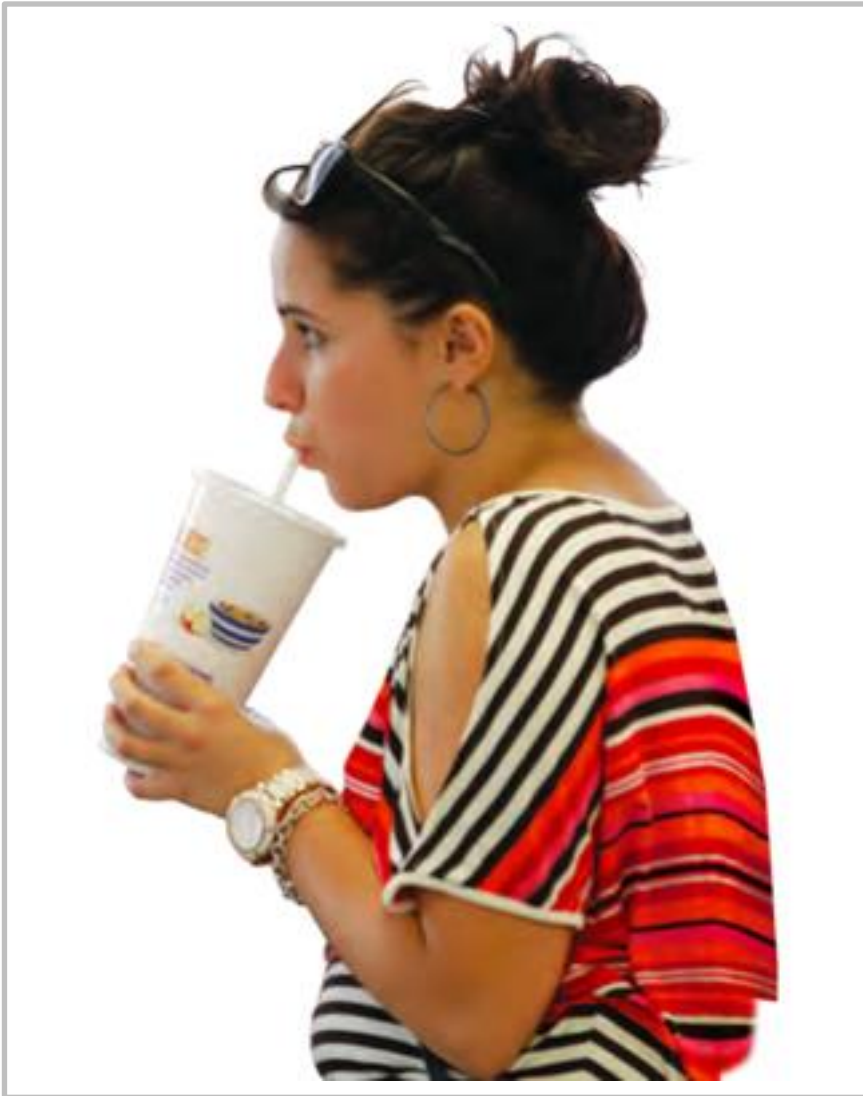
Variables

- Measurable characteristics that vary, or change, over time or across people

Population

- All members of an identified group about which a researcher is interested.

Research Designs – Part III



Sample

- Subset of a population chosen for inclusion in an experiment.

If a researcher aims to understand American attitudes about supersize soda bans, she would be foolish to limit her study to residents of New York City.

Did you find out why as you read your text?

Research Designs – Part IV

Random sample

- Subset of the population chosen through a procedure that ensures all members of the population have an equally likely chance of being selected to participate in the study

Representative sample

- Subgroup of a population selected so that its members have characteristics that closely reflect those of the population of interest

Do you know?

Why is it important for a researcher to choose a representative sample?
Because this allows her to generalize the findings, meaning to apply the information from the sample to the population at large.

Research Designs – Part V

Informed consent

- Acknowledgment by study participants that they understand what their participation will entail.

Debriefing

- Sharing information with participants after their involvement in a study has ended, including the purpose of the study and deception used in it.

SHOW WHAT YOU KNOW – Part X

1. Psychology studies focus on variables, which are characteristics that vary or change over time or across people.

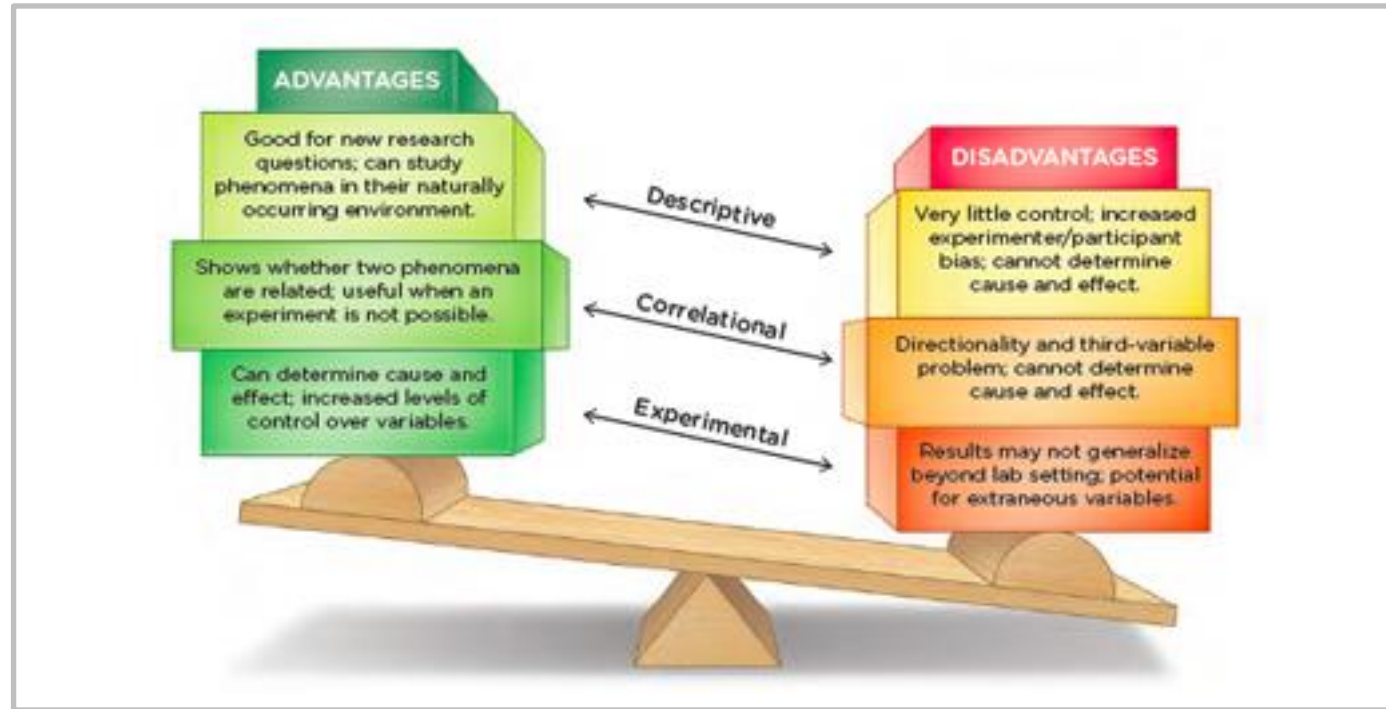
2. A researcher is interested in studying college students' attitudes about banning supersize sodas. She randomly selects a sample of students from across the nation, trying to pick a _____ that will closely reflect the characteristics of college students in the United States.
 - a. variable
 - b. debriefing
 - c. representative sample
 - d. representative population

SHOW WHAT YOU KNOW – Part XI

3. Why do researchers need to ensure that they collect data from a representative sample?

A representative sample explores and describes behaviors. This approach is excellent for investigating unfamiliar topic. A researcher conducting such a study has few or no specific expectations about outcomes, and may use this findings to direct future research. A critical weakness of descriptive research is that it cannot uncover cause-and-effect relationships.

Research Methods



How does a researcher choose which method to use? It depends on the research question. Each research method has advantages and disadvantages.

Descriptive Research – Part I

NATURALISTIC RESEARCH

Important features

- Environment not disturbed.
- Variables operationally defined.

Pitfalls

- Unwanted variables in natural environment
- Replication of research more difficult.

Observer bias

- Errors due to researcher's value system, expectations, attitudes reduced with comparison from multiple observers.

Descriptive Research – Part II

CASE STUDIES

Important features

- Involves detailed examination of individual or small group
- Includes large amount of data on one particular person or group
- Is especially useful investigating unique cases

Pitfalls

- Cannot be used to support or refute hypothesis

Descriptive Research – Part III

Rain Man

The subject of one of the most famous case studies in the history of psychology, Kim Peek was able to simultaneously read two pages of a book—one with each eye—and memorize nearly all the information it contained.

Case studies are often used to study rare psychological conditions relating to cognition, personality, and behavior.



Descriptive Research

CLASSIC CASE STUDIES IN PSYCHOLOGY – Part I

Case Study	Description	Outcome
<ul style="list-style-type: none">• Phineas Gage• H. M.• Little Albert	<ul style="list-style-type: none">• A railroad worker who survived after an iron rod blasted through his skull• A man who suffered from profound memory loss following brain surgery• An 11-month-old who was conditioned to fear rats	<ul style="list-style-type: none">• Suggested the role that frontal lobes play in personality• Showed how brain damage can be linked to memory loss• Revealed the ability to classically condition fear in humans

Descriptive Research

CLASSIC CASE STUDIES IN PSYCHOLOGY – Part II

Case Study	Description	Outcome
<ul style="list-style-type: none">▪ The Genain Quadruplets▪ "Rat Man"▪ Lorenz's Geese	<ul style="list-style-type: none">▪ Identical quadruplet sisters who all developed schizophrenia▪ A man with obsessive thoughts, including a punishment involving rats▪ Goslings that became attached to Konrad Lorenz	<ul style="list-style-type: none">▪ Demonstrated a genetic factor is involved in schizophrenia▪ Exemplified a case study on which Sigmund Freud based his theories▪ Documented the imprinting phenomenon

- Summarized here are some of the most colorful case studies in the history of psychology. These classic studies have provided psychologists with valuable insights into human behaviors, and you will read about many of them in the chapters to come.

Descriptive Research – Part IV

SURVEY METHODS

Advantages

- Fast way to collect descriptive data

Disadvantages

- Wording and honesty
- Skimming the surface
- Representative sample and survey

Descriptive Research – Part V

SURVEY METHODS

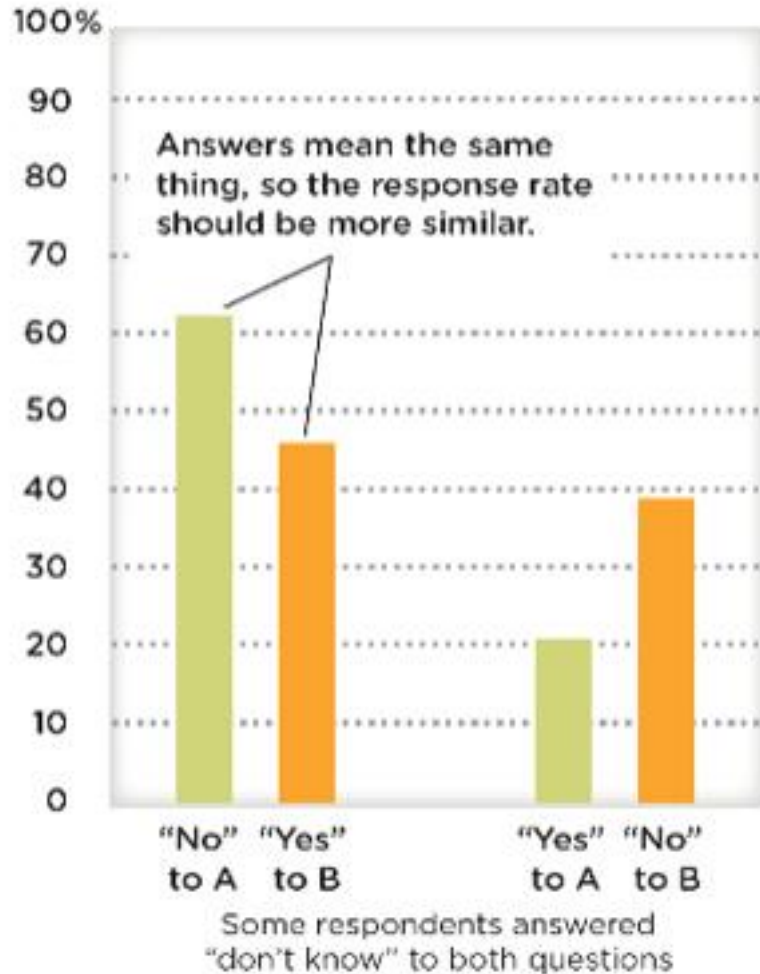
Wording and honesty

- Wording can lead to response bias.
- Participants are not always truthful.
- Inaccurate representation of attitudes and beliefs may occur.

It Depends How You Ask

In a classic study, researchers asked two versions of the same question: (A) Do you think the United States should allow public speeches against democracy? (B) Do you think the United States should forbid public speeches against democracy?

What were the results?



SURVEY METHODS

Disadvantages

- Skimming the surface and failing to tap into the complex issues underlying responses
- Representative sample and survey may fail when the response rate falls short

Descriptive Research – Part VII

CORRELATIONAL METHOD

Advantages

- Examines relationships among variables
- Assists in making predictions

Weaknesses

- Does not prove causation

Descriptive Research – Part VIII



Third variable

- Some unaccounted-for characteristic of participant or environment

Dario Segovia began to work at the San José mine just three months before its collapse, so he would have been at the low end of the pay scale.

But working at the notoriously risky mine paid well compared to other mining gigs.

Laboring in dangerous conditions is a “third variable” that could influence the positive relationship between years worked in the mine and salary.

(Webber, 2010, October 11). DPA/ZUMApres.com

Descriptive Research – Part IX

CORRELATIONAL METHOD

Correlation coefficient (r)

- Statistical measure (symbolized as r) indicates the strength and direction of the relationship between two variables.
 - Closer r is to +1.00 or to -1.00, the stronger the relationship.
 - Closer r is to 0.00, the weaker the relationship.

The Correlation Coefficient: What's in a number?

INFOGRAPHIC 1.4

The Correlation Coefficient: What's in a Number?

A correlation indicates a relationship between two variables, such as the amount of time you spend studying and the grade you get on a test. This relationship is often indicated using a correlation coefficient, symbolized as r . To interpret the relationship using a correlation coefficient (r), ask yourself two questions:

- (1) What is the direction of the relationship?
- (2) What is the strength of the relationship?

A sample helps us see what the correlation looks like.

And remember, a correlation between two variables does not necessarily mean that one variable caused the change in the other variable.

$$r = +.73$$

What Is the Direction of the Correlation?

- **positive (+) correlation**
as one variable increases, the other also increases
- **negative (-) correlation**
as one variable increases, the other decreases (an inverse relationship)

Example: $+ .73$ is a positive correlation, reflecting a positive relationship. As hours spent studying increase, test grades also increase.

What Is the Strength of the Correlation?

- strength ranges from $+1.00$ to -1.00
- a value close to $+1.00$ or -1.00 is a **strong** correlation
- a value close to 0.00 is a **weak** correlation

Example: $+ .73$ is close to 1.00 . This shows a **strong** correlation. Students who spend more hours studying get higher grades.



BEWARE of the potential Third Variable

Correlation does not indicate that one variable causes a change in the other. A **third variable** may have influenced the results.

Example: Although time spent studying and test grades are strongly and positively correlated, attendance is another variable. Students who attend classes regularly tend to spend more hours studying. Likewise, students who attend classes regularly know what to expect on the test and are therefore likely to get better grades.

What does the Correlation look like?

Using a scatterplot, we can express the relationship between two variables. One variable is located on the horizontal (x) axis, and the second variable is located on the vertical axis. Each dot represents one participant's scores on the two variables. As follows, the shape of the graph changes depending on the direction and strength of the relationship between the variables.



Example: $+ .73$ (strong positive correlation)



perfect positive correlation (+1.00)



no relationship (0.00)



perfect negative correlation (-1.00)

ACROSS THE WORLD

THE MANY FACES OF FACEBOOK

- Facebook is the most widely used social networking site in the world.
- 81 percent of users reside outside of North America.
- Across cultures, the motivations for using Facebook were social searching and social browsing.
- French and Italian users were more inclined to shop for new contacts.
- British averaged the most total time; French and Greek users did fewer status updates; French did not value photographs.

Did these results surprise you? Why? Why not?

SHOW WHAT YOU KNOW – Part XII

1. _____ is primarily useful for studying new or unexplored topics.
 - a. An operational definition
 - b. Observer bias
 - c. Descriptive research
 - d. A correlation

SHOW WHAT YOU KNOW – Part XIII

2. A researcher was interested in studying the behaviors of parents dropping off children at preschool. He trained several teachers to use a checklist and a stopwatch to record how long it took a caregiver to enter and leave the classroom, as well as the subsequent behaviors of the children. This approach to collecting data is referred to as:

- a. naturalistic observation.
- b. representative sampling.
- c. informed consent.
- d. applied research.

SHOW WHAT YOU KNOW – Part XIV

3. The longer a miner has worked for a mining company, the more money he makes. This is an example of a positive correlation.

4. Describe the strengths and weaknesses of descriptive research.

Descriptive Research explores and describes behaviors. This approach is excellent for investigating unfamiliar topics. A researcher conducting such a study has few or no specific expectation about outcomes, and may use his findings to direct future research. A critical weakness of descriptive research is that it cannot uncover cause-and-effect relationships.

Experimental Research: Experimental Method – Part I

Experimental method

- Type of research that manipulates a variable of interest (independent variable) to uncover cause-and-effect relationships

Random assignment

- Process of appointing participants in a research study to the experimental or control groups, ensuring that every person has an equal chance of being assigned to either

Experimental Research: Experimental Method – Part II

Experimental group

- Members of an experiment who are exposed to the treatment variable or manipulation by the researcher; represents the treatment group.

Control group

- Participants in an experiment who are not exposed to the treatment variable; this is the comparison group.

Experimental Research: Experimental Method – Part II

Independent variable (IV)

- In an experimental design, the variable manipulated by the researcher to determine its effect on the dependent variable.

Dependent variable (DV)

- In an experimental design, the characteristic or response that is measured to determine the effect of the researcher's manipulation.

Experimental Research: Experimental Method – Part VI

Extraneous variable

- Variable in the environment or of the participants that could unintentionally influence the outcome of the study

Confounding variable

- Type of extraneous variable that changes in sync with the independent variable, making it difficult to discern which one is causing changes in the dependent variable.

EXPERIMENTAL METHOD

LOOKS REAL

One of these pills contains an active ingredient; the other is a placebo. In placebo-controlled drug trials, researchers give some participants drugs and others placebos.

People taking the placebos often experience effects that are similar to those reported by the participants taking the actual drug.

Cordelia Molloy/Science Source

Placebo

An inert substance given to members of the control group; a fake treatment that has no benefit, but is administered as if it does.



Experimental Research: Experimental Method – Part V

Double blind study

- Type of study in which neither the researchers who are administering the independent variable nor the participants know what type of treatment is being given

Experimenter bias

- Researchers' expectations that influence the outcome of a study.

To the Rescue



A photo taken on October 7, 2010, shows two of the three drills used to bore rescue shafts for the miners. The rescue of Los 33 was truly an international collaboration, as workers and equipment from countries all over the world were deployed to the Atacama Desert.

Didn't See That Coming



SPONGEBOB ON THE BRAIN

- No one expects cartoons to make kids smarter, but can cartoons hurt them?
- One study suggests that preschool children watching just 9 minutes of the high-energy, ultra-stimulating kids' show *SpongeBob Square Pants* experience a temporary dip in cognitive function.

PRNewsFoto/Nickelodeon

Were you surprised at these results?

SHOW WHAT YOU KNOW – Part XV

1. The experimental method can provide findings on the _____ of variables.
 - a. experimenter bias
 - b. confounding
 - c. random assignment
 - d. cause-and-effect relationship

SHOW WHAT YOU KNOW – Part XVI

2. A researcher studying the impact of vitamin D on cognitive functioning gave supplements to the experimental group and a placebo to the control group. After 2 months, she tested the participants' cognitive functioning, which is a measure of the _____ variable.

- a. dependent
- b. independent
- c. extraneous
- d. confounding

SHOW WHAT YOU KNOW – Part XVII

3. A study of preschool children looked at the impact of watching fast-paced cartoons on executive functioning. Half of the children were assigned to watch *SpongeBob Square Pants* in a room alone. The other half were assigned to draw for the same amount of time while sitting at a table with other children. The researcher mistakenly introduced a confounding variable, which in this case was:

- a. whether the child watched the cartoon or not.
- b. whether the child was alone or with others.
- c. whether the child was drawing or not.
- d. that both groups spent the same amount of time in their activity.

SHOW WHAT YOU KNOW – Part XVIII

4. Describe what a **double-blind** study is and explain why deception is necessary in this case.

In a double-blind study, neither the participants nor the researchers working directly with those participants know who is getting the treatment and who is getting the placebo. This type of study is designed to reduce expectations and biases that can arise when either participants or experimenters know what they've received or distributed. This use of deception is necessary so that neither experimenter nor participant consciously or unconsciously alters their behaviors, that is, unknowingly changes the outcome of the experiment.

Important Issues – Part I

RESEARCH ETHICS

Ethical guidelines

- Written guidelines for ethical treatment of research participants
 - APA
 - APS
 - BPS

Confidentiality

Deception

Conducting research on infants and other minors involves additional ethical considerations, and informed consent must be obtained from parents or legal guardians.



PSYCHOLOGY IN THE MEDIA



In 2012 researchers published a study showing a correlation between pacifier use in boys and lower levels of emotional intelligence later in life. The findings of this study could easily be interpreted as “pacifier use stunts emotional development,” but this is a reckless conclusion.

Do you know why?

Important Issues – Part II

POSITIVE PSYCHOLOGY

Focus

- Positive aspects of human nature
- Human strengths and virtues

SHOW WHAT YOU KNOW – Part XIX

1. _____ is the process through which research participants acknowledge their understanding of their role in a study.
 - a. Informed consent
 - b. Research ethics
 - c. Debriefing
 - d. Positive psychology

SHOW WHAT YOU KNOW – Part XX

2. Following a study involving a double-blind procedure with a treatment and a placebo, a researcher met with each participant individually to discuss important information about the study.

This is known as:

- a. informed consent.
- b. debriefing.
- c. deception.
- d. naturalistic observation.

SHOW WHAT YOU KNOW – Part XXI

3. In the study about pacifier use, newspapers and websites ran headlines that were somewhat misleading with regard to the findings.

How would you write a headline for an article on the findings of this study so that it draws readers in but still represents the findings fairly?

Answers may vary: “pacifiers and Emotional Health”; “Pacifiers and Empathy”; “Binkie Psychology”