Advanced Placement Psychology

Compendium

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History and Approaches

Psychology has evolved markedly since its inception as a discipline in 1879. There have been significant changes in the theories that psychologists use to explain behavior and mental processes. In addition, the methodology of psychological research has expanded to include a diversity of approaches to data gathering.

Myers Modules 1-3 pages 1-28

2 to 4 % of AP Course

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Objectives

- ☐ I can recognize how philosophical and physiological perspectives shaped the development of psychological thought.

- ☐ I can describe and compare different theoretical approaches in explaining behavior:
  structuralism, functionalism, and behaviorism in the early years;
  Gestalt, psychoanalytic/psychodynamic, and humanism emerging later;
  evolutionary, biological, cognitive, and biopsychosocial as more contemporary approaches.

- ☐ I can recognize the strengths and limitations of applying theories to explain behavior.

- ☐ I can distinguish the different domains of psychology (e.g., biological, clinical, cognitive, counseling, developmental, educational, experimental, human factors, industrial–organizational, personality, psychometric, social).

- ☐ I can identify major historical figures in psychology (e.g., Mary Whiton Calkins, Charles Darwin, Dorothea Dix, Sigmund Freud, G. Stanley Hall, William James, Ivan Pavlov, Jean Piaget, Carl Rogers, B. F. Skinner, Margaret Floy Washburn, John B. Watson, Wilhelm Wundt).

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Define and Apply the following the following Vocab and/or concepts

empiricism
structuralism
functionalism
experimental psychology
behaviorism
humanistic psychology
cognitive neuroscience
Psychology
nature-nurture debate
natural selection
levels of analysis
behavioral psychology

biological psychology
cognitive psychology
evolutionary psychology
psychodynamic psychology
social-cultural psychology
psychometrics
basic research
developmental psychology
educational psychology
personality psychology

social psychology
applied research
industrial-organizational psychology
human factors psychology
counseling psychology
clinical psychology
psychiatry
positive psychology
community psychology
testing effect
SQ3R

Key People:

Mary Whiton Calkins
Charles Darwin
Dorothea Dix
Sigmund Freud
Max Wertheimer

G. Stanley Hall
William James
Abraham Maslow
Ivan Pavlov
Jean Piaget
Wilhelm Wundt

Carl Rogers
B. F. Skinner
Margaret Floy Washburn
John B. Watson

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I can recognize how philosophical and physiological perspectives shaped the development of psychological thought.

Psychology's Biggest Questions and Enduring Themes

Nature vs Nurture: This debate within psychology is concerned with the extent to which particular aspects of behavior are a product of either inherited (i.e. genetic) or acquired (i.e. learned) characteristics.

Mind-Body: One of the central questions in psychology (and philosophy) concerns the mind/body problem. Is the mind part of the body, or the body part of the mind? If they are distinct, then how do they interact? And which of the two is in charge?

Reductionism vs Holism: Reductionism is the belief that human behavior can be explained by breaking it down into smaller component parts.
Holism refers to any approach that emphasizes the whole rather than its constituent parts. In other words, "the whole is different from the sum of its parts."

Science vs Common Sense: Science uses an empirical approach. Empiricism (founded by John Locke) states that the only source of knowledge comes through our senses – e.g., sight, hearing, etc. The scientific method is a body of techniques for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge. To be termed scientific, a method of inquiry is commonly based on empirical or measurable evidence subject to specific principles of reasoning. Common sense, then, is something that everybody uses in their daily lives, guides decisions, and influences how we interact.

Nomothetic vs idiographic: The term "nomothetic" comes from the Greek word "nomos" meaning "law". Psychologists who adopt this approach mainly study what we share with others. That is to say in establishing laws or generalizations… The term "idiographic" comes from the Greek word "idios" meaning "own" or "private". Psychologists interested in this aspect of experience want to discover what makes each of us unique.

Stability vs. Change: Debate over whether personality traits present during infancy endure throughout the lifespan. Some developmental psychologists argue that personality traits seen in infancy persist through a person's entire life. Change theorists argue that personalities are modified by interactions with family, experiences at school, and acculturation.

Person- Situation: A theoretical disagreement in psychology about the influence of personality and situational factors on behavior. Is behavior controlled by our personality or by the situational factors around us? Is personality formed from situational factors that influence us or innate traits that we are born with? Is a person's behavior a result of their personality or the situational factors they are presented with?

Determinism vs Free Will: The determinist approach proposes that all behavior is caused by preceding factors and is thus predictable. The causal laws of determinism form the basis of science. Free will is the idea that we are able to have some choice in how we act and assumes that we are free to choose our behavior, in other words, we are self-determined.

I can recognize how philosophical and physiological perspectives shaped the development of psychological thought.

Psychology is the science of behavior and mental processes.

Psychology's roots

Ancient Scholars have always philosophized about the mind. Socrates and Plato believed that the mind was separate from the body and that knowledge is innate (born with us) (nature). Aristotle disagreed believing that knowledge comes from observing experiences (nurture). Later, Rene Descartes was interested in how the physical body and non-physical mind work together. Trying to figure out the body-mind connection, he correctly concluded that the brain and nerves contributed to the movement. Ideas are innate and the mind is entirely distinct from the body. "I think, therefore, I am."

Philosopher John Locke theorized that we are born with minds that are a "blank slate" (tabula rasa). Everything we know has been learned since then. This is the birth of modern ***"empiricism"*** – knowledge comes from experiences.

I can describe and compare different theoretical approaches in explaining behavior: structuralism, functionalism, and behaviorism in the early years; Gestalt, psychoanalytic/psychodynamic, and humanism emerging later; evolutionary, biological, cognitive, and biopsychosocial as more contemporary approaches.

I can recognize the strengths and limitations of applying theories to explain behavior.

Wilhelm Wundt (1832–1920) is considered the "father of ***experimental psychology***." In 1879, he set up the first psychological laboratory in an apartment near the University at Leipzig, Germany. In the "first" psych experiment, Wundt measured the time it took people to hit a switch as soon as they heard and perceived a sound. Wundt believed that the focus of scientific psychology should be the study of the conscious experience. Measured psychological processes through ***introspection*** which required people to report their conscious experiences. Using introspection, his subjects were asked to record accurately their cognitive reactions to simple stimuli. Through this process, Wundt hoped to examine basic cognitive structures. He eventually described his theory of ***structuralism***—the idea that the mind operates by combining subjective emotions and objective sensations.

One of Wundt's students was an American named ***Edward Bradford Titchener***. Titchener continued to popularize structuralism and his followers were known as Structuralists. Structuralists analyzed conscious experiences into their elements: sensation, images, and affective states (emotion, arousal, and motivation). They called these elements the structures of conscious experience. To figure out the structure, Titchener encouraged introspection (looking inward), a process of self-observation. His subjects looked at items, like a rose, or listened to music and then reported sensations, feelings, etc.

An American psychologist named ***William James*** redefined psychology as the study of the mind as it functions in adapting the organism to its environment. In 1890, James published *The Principles of Psychology*, the science's first textbook. James examined how these structures Wundt identified function in our lives (James's theory is called ***functionalism***). James focused on the purposes of consciousness (thoughts and feelings), behaviors, and how they help us adapt to the environment. He studied consciousness as an ongoing process or stream (stream of consciousness) instead of reducing it into its elements. James argued that the proper subject matter of psychology was the study of the organism functioning as a whole in its environment. The research method favored by functionalists was objective observation and little introspection. Critics claimed that functionalism was not based on controlled experiments and its theories provided little predictive ability.

Gestalt Psychology

While Wundt and James were experimenting with introspection, another group of early psychologists was explaining human thought and behavior in a very different way. Gestalt psychologists like ***Max Wertheimer*** (1880–1943) argued against dividing human thought and behavior into discrete structures.

Gestalt psychology tried to examine a person's total experience because the way we experience the world is more than just an accumulation of various perceptual experiences. Gestalt theorists demonstrated that the whole experience is often more than just the sum of the parts of the experience. A painting can be represented as rows and columns of points of color, but the experience of the painting is much more than that. Therapists later incorporated Gestalt thinking by examining a client's difficulty and the context in which the difficulty occurs. Like the introspective theories, other than the contribution to specific forms of therapy and the study of perception, Gestalt psychology has relatively little influence on current psychology.

First approaches

Approach	Key Names	Key ideas	methods	Contributions	Criticism
Structuralism	Wilhelm Wundt Edward Titchener	Structures of the mind Break experiences into basic elements	introspection	1st psychology lab. Psychology's first definition	Too subjective Lack reliability Not measurable
Functionalism	William James	Focus on purpose of consciousness and behavior in terms of adaption to the person's environment	Objective Observation And empirical evidence	Led to the development of Behaviorism and applied psychology	Not based on controlled experiments and theories provided little predictive ability
Gestalt Theory	Max Wertheimer Kurt Koffka	We perceive objects as a whole "The whole is other than the sum of its parts"	Created Gestalt Laws of Perceptual Organization	Sensation and perception Education methods	More descriptive than explanatory

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Students of William James

G. Stanley Hall

American student of Wundt & then James at Harvard

1884- Established the first formal United States psychology laboratory at Johns Hopkins University

1883- Created 1st American journal

1892- First president of the American Psychological Association (APA)

Mary Whiton Calkins (1863-1930)

Studied under James

Was refused the Ph.D. she earned from Harvard because she was female

Founded labs at Wellesley College

Invented widely used tech for studying memory

1st APA woman president (1905)

According to apa.org. In 2005, nearly 72 percent of new PhD and PsyDs entering psychology were women. Click here for article.

In addition to Mary Whiton Calkins, the group of women below contributed greatly to the progress of psychology.

Margaret Floy Washburn (1871–1939)

First female to receive her PhD in psychology

Wrote "The Animal Mind" (1908)

Served as beginning of comparative psychology (the psychology of animals)- behaviorism

Standard reading for generations of psychologists

2nd woman APA president

Leta Stretter Hollingworth (1886-1939)

Pioneered work in Adolescent development

Mental Retardation

Gifted children

1st to use word "gifted" to describe children who scored exceptionally well on intelligence tests

Tried to invalidate certain theories of her time

Mamie Phipps Clark (1917–1983)

First Black female PhD; denied a faculty position because of her gender

Explored impact race recognition on self-esteem

Dorothea Dix (1802-1887)

Advocate for how people with mental illness were treated

Led the way for first mental asylums in US

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Psychoanalysis

Sigmund Freud (1856-1939) revolutionized psychology with his psychoanalytic theory. While treating patients for various psychosomatic complaints, Freud believed he discovered the unconscious mind—a part of our mind over which we do not have conscious control that determines, in part, how we think and behave. Freud believed that this hidden part of ourselves builds up over the years through repression—the pushing down into the unconscious events and feelings that cause so much anxiety and tension that our conscious mind cannot deal with them.

Freud believed that to understand human thought and behavior truly, we must examine the unconscious mind through dream analysis, word association, and other psychoanalytic therapy techniques. While many therapists still use some of Freud's basic ideas in helping clients, Freud has been criticized for being unscientific and creating unverifiable theories. Freud's theories were and are widely used by various artists. Many of Freud's terms moved from being exclusively used by psychologists to being used in day-to-day speech (for example, defense mechanism).

Behaviorism

John Watson (1878–1958) studied the pioneering conditioning experiments of ***Ivan Pavlov*** (1849– 1936). For psychology to be considered a science, Watson then declared that it must limit itself to observable phenomena, not unobservable concepts like the unconscious mind. Watson along with others wanted to establish ***behaviorism*** as the dominant paradigm of psychology. Behaviorists maintain that psychologists should look at only behavior and causes of behavior—*stimuli* (environmental events) and *responses* (physical reactions)—and not concern themselves with describing elements of consciousness. Another behaviorist, ***B. F. Skinner*** (1904–1990), expanded the basic ideas of behaviorism to include the idea of *reinforcement*—environmental stimuli that either encourage or discourage certain responses. Skinner's intellectual influence lasted for decades. Behaviorism was psychology's dominant school of thought from the 1920s through the 1960s.

TABLE 2.2 Psychoanalytic Theory vs. Behaviorism

Area of Disagreement	Psychoanalytic Theory	Behaviorism
The unconscious	Emphasizes unconscious wishes and urges, unknown to the person but powerful all the same	Holds that the unconscious not only is unknowable but also may be a destructive fiction that keeps people from changing
Observable behavior	Holds that observable behavior is a symptom, not the cause—the tip of an iceberg, with the bulk of the problem submerged	Looks only at observable behavior—what a person does rather than what a person thinks, feels, or imagines
Importance of childhood	Stresses that early childhood, including infancy, is critical; even if a person does not remember what happened, the early legacy lingers throughout life	Holds that current conditioning is crucial; early habits and patterns can be unlearned, even reversed, if appropriate reinforcements and punishments are used
Scientific status	Holds that most aspects of human development are beyond the reach of scientific experiment; uses ancient myths, the words of disturbed adults, dreams, play, and poetry as raw material	Is proud to be a science, dependent on verifiable data and carefully controlled experiments; discards ideas that sound good but are not proven

Test Tip

The behavioral perspective has generated significantly more multiple-choice questions than any of the other perspectives discussed in this chapter. Make sure that you know that Watson, Skinner, and other pioneering behaviorists stressed the importance of studying observable behavior. In addition, remember that behaviorist therapists use reinforcement to modify a client's behavior.

Test Tip

Multiple Perspectives

Currently, there is no one way of thinking about human thought and behavior that all or even most psychologists share. Many psychologists describe themselves as ***eclectic***—drawing from multiple perspectives. As psychology develops in the new century, perhaps one way of thinking will become dominant. For now, though, psychologists look at thought and behavior from multiple perspectives.

Humanist Perspective: Partially in reaction to the perceived reductionism of the behaviorists, some psychologists tried to describe some mysterious aspects of consciousness again. The humanists, including theorists ***Abraham Maslow*** (1908–1970) and ***Carl Rogers*** (1902–1987), stressed individual choice and free will. This contrasts with the deterministic behaviorists, who theorized that all behaviors are caused by past conditioning. Humanists believe that we choose most of our behaviors and these choices are guided by physiological, emotional, or spiritual needs. A humanistic psychologist might explain that an introverted person may choose to limit social contact with others because he or she finds that social needs are better satisfied by contact with a few close friends rather than large groups. Humanistic theories are not easily tested by the scientific method. Some psychological historians view it as more of a historical perspective than a current one. However, some therapists find humanistic ideas helpful in aiding clients to overcome obstacles in their lives.

HUMANISTIC PERSPECTIVE
Emerged from the pioneering work of Carl Rogers and Abraham Maslow. Emphasizes the importance of self-esteem, free will, and choice in human behavior.

Psychoanalytic Perspective: The *psychoanalytic* perspective, as described previously, continues to be a part, if a controversial one, of modern psychology. Psychologists using this perspective believe that the *unconscious* mind—a part of our mind that we do not have conscious control over or access to—controls much of our thought and action. Psychoanalysts would look for impulses or memories pushed into the unconscious mind through *repression.* This perspective thinks that to understand human thought and behavior, we must examine our *unconscious* mind through dream analysis, word association, and other psychoanalytic therapy techniques. A psychoanalytic psychologist might explain that an introverted person avoids social situations because of a repressed memory of trauma in childhood involving a social situation, perhaps acute embarrassment or anxiety experienced (but not consciously remembered) at school or a party.

PSYCHOANALYTIC/PSYCHODYNAMIC PERSPECTIVE
Emerged from the pioneering work of Sigmund Freud. Emphasizes the role of unconscious conflicts in determining behavior and personality.

Biopsychology (or Neuroscience) Perspective: *Biopsychologists* explain human thought and behavior strictly in terms of biological processes. Human *cognition* and reactions might be caused by the effects of our *genes, hormones,* and *neurotransmitters* in the brain or by a combination of all three. A biopsychologist might explain a person's tendency to be *extroverted* as caused by genes inherited from their parents and the genes' effects on the abundance of certain neurotransmitters in the brain. Biopsychology is a rapidly growing field. Some scientists wonder if the future of psychology might be a branch of the science of biology.

BIOLOGICAL PERSPECTIVE
Emphasizes genetics, the roles of various parts of the brain, and the structure and function of individual nerve cells

Evolutionary (or Darwinian) Perspective: Evolutionary psychologists (also sometimes called sociobiologists) examine human thoughts and actions in terms of natural selection. Some psychological traits might be advantageous for survival, and these traits would be passed down from the parents to the next generation. A psychologist using the evolutionary perspective (based on ***Charles Darwin's*** (1809–1882 theory of natural selection) might explain a person's tendency to be extroverted as a survival advantage. If a person is outgoing, he or she might make friends and allies. These connections could improve the individual's chances of survival, which increases the person's chances of passing this trait of extroversion down to his or her children. The Evolutionary Perspective is similar to (and in some ways a subset of) the Biopsychology Perspective.

EVOLUTIONARY PERSPECTIVE
Influenced by the seminal writings of *Charles Darwin*. Emphasizes the role played by natural selection and adaptation in the evolution of behavior and mental processes.

Behavioral Perspective: *Behaviorists* explain human thought and behavior in terms of *conditioning.* Behaviorists look strictly at observable behaviors and what reaction organisms get in response to specific behaviors. A behaviorist might explain a person's tendency to be extroverted in terms of reward and punishment. Was the person rewarded for being outgoing? Was the person punished for withdrawing from a situation or not interacting with others? A behaviorist would look for environmental conditions that caused an extroverted response in the person.

BEHAVIORAL PERSPECTIVE
Emerged from the pioneering work of Ivan Pavlov, John B. Watson, and B.F. Skinner. Emphasizes observable behavior that can be objectively measured.

Cognitive Perspective: *Cognitive psychologists* examine human thought and behavior in terms of how we interpret, process, and remember environmental events. In this perspective, the rules that we use to view the world are important to understanding why we think and behave the way we do. In the **"*Developmental Psychology***" chapter, you will learn about *Jean Piaget's* cognitive developmental theory (1896–1980), which focuses on how our cognitions develop in stages as we mature. A cognitive psychologist might explain a person's tendency to be extroverted in terms of how he or she interprets social situations. Does the individual interpret others' offers for conversation as important ways to get to know someone or important for his or her own life in some way? To a cognitive psychologist, an extroverted person sees the world in such a way that being outgoing makes sense.

COGNITIVE PERSPECTIVE
Influenced by the computer revolution, the cognitive perspective compares the mind to a computer that encodes, processes, and stores information. Cognitive psychologists emphasize thinking, perceiving, and information processing.

***Social-Cultural (or Sociocultural)* Perspective**: *Social-cultural psychologists* look at how our thoughts and behaviors vary from people living in other *cultures.* They emphasize the influence culture has on the way we think and act. A social-cultural psychologist might explain a person's tendency to be extroverted by examining his or her culture's rules about social interaction. How far apart do people in this culture usually stand when they have a conversation? How often do people touch each other while interacting? How much value does the culture place on being part of a group versus being an individual? These cultural norms would be important to a sociocultural psychologist in explaining a person's extroversion.

Social-Cultural PERSPECTIVE
Explores the impact of social situations and cultural influences on behavior and thinking.

Like different academic disciplines, psychology's varied approaches, or perspectives, ask different questions and have their own limits.

Each level provides a valuable vantage point for looking at a behavior or mental process, yet each by itself is incomplete.

Diverse views on anger

Someone working from the **behavioral perspective** might attempt to determine which external stimuli trigger angry responses or aggressive acts.

Someone working from a **biological perspective** might study brain circuits that cause us to be "red in the face" and "hot under the collar," or how heredity and experience influence our individual differences in temperament.

Someone working from the **cognitive perspective** might study how our interpretation of a situation affects our anger and how our anger affects our thinking.

Someone working from the **evolutionary perspective** might analyze how anger facilitated the survival of our ancestors' genes.

Someone working from the **humanistic perspective** (a historically important approach) might have been interested in understanding how angry feelings affect a person's potential for growth. As we will see, modern-day positive psychology incorporates humanistic psychology's emphasis on human flourishing.

Someone working from the **psychodynamic perspective** (which evolved from Freud's psychoanalysis) might view an outburst as an outlet for unconscious hostility.

Someone working from the **social-cultural perspective** might explore how expressions of anger vary across cultural contexts.

15 Psychologists you absolutely need to know

Psychologist	Chapter	Major Contributions to Psychology
Solomon Asch	Social Psychology (14)	Conformity and impression formation experiments
Albert Bandura	Learning (6), Personality (10)	Social-learning theory (modeling); reciprocal determinism; self-efficacy
Albert Ellis	Treatment of Psychological Disorders (13)	Rational emotive behavior therapy (REBT)
Erik Erikson	Developmental Psychology (9)	Psychosocial stage theory of development
Sigmund Freud	Personality (10), Developmental Psychology (9), States of Consciousness (5)	Psychosexual stage theory of personality; stressed importance of unconscious and sexual drive; psychoanalysis; theory of dreaming
Harry Harlow	Developmental Psychology (9)	Attachment studies with infant monkeys
Lawrence Kohlberg	Developmental Psychology (9)	Stage theory of moral development
Abraham Maslow	Motivation and Emotion (8), Treatment of Psychological Disorders (13)	Hierarchiy of needs; self-actualization
Stanley Milgram	Social Psychology (14)	Obedience studies
Ivan Pavlov	Learning (6)	Classical conditioning—studies of dogs and salivation
Jean Piaget	Developmental Psychology (9)	Stage theory of cognitive development
Carl Rogers	Treatment of Psychological Disorders (13), Personality (10)	Person-(client-) centered therapy; unconditional positive regard
B. F. Skinner	Learning (6)	Operant conditioning—reinforcement; invented Skinner box
John Watson	Learning (6)	Father of behaviorism; Baby Albert experiment—clasically conditioned fear
Wilhelm Wundt	History and Approaches (1)	Set up first psychological laboratory; theory of development

Psychology's Three Main Levels of Analysis

Levels of analysis refer to differing complementary views, from biological to psychological to social-cultural, for analyzing any given phenomenon. Everything is related to everything else. Together, different levels of analysis for an integrated ***biopsychosocial*** approach, which considers the influences of biological, psychological, and social-cultural factors.

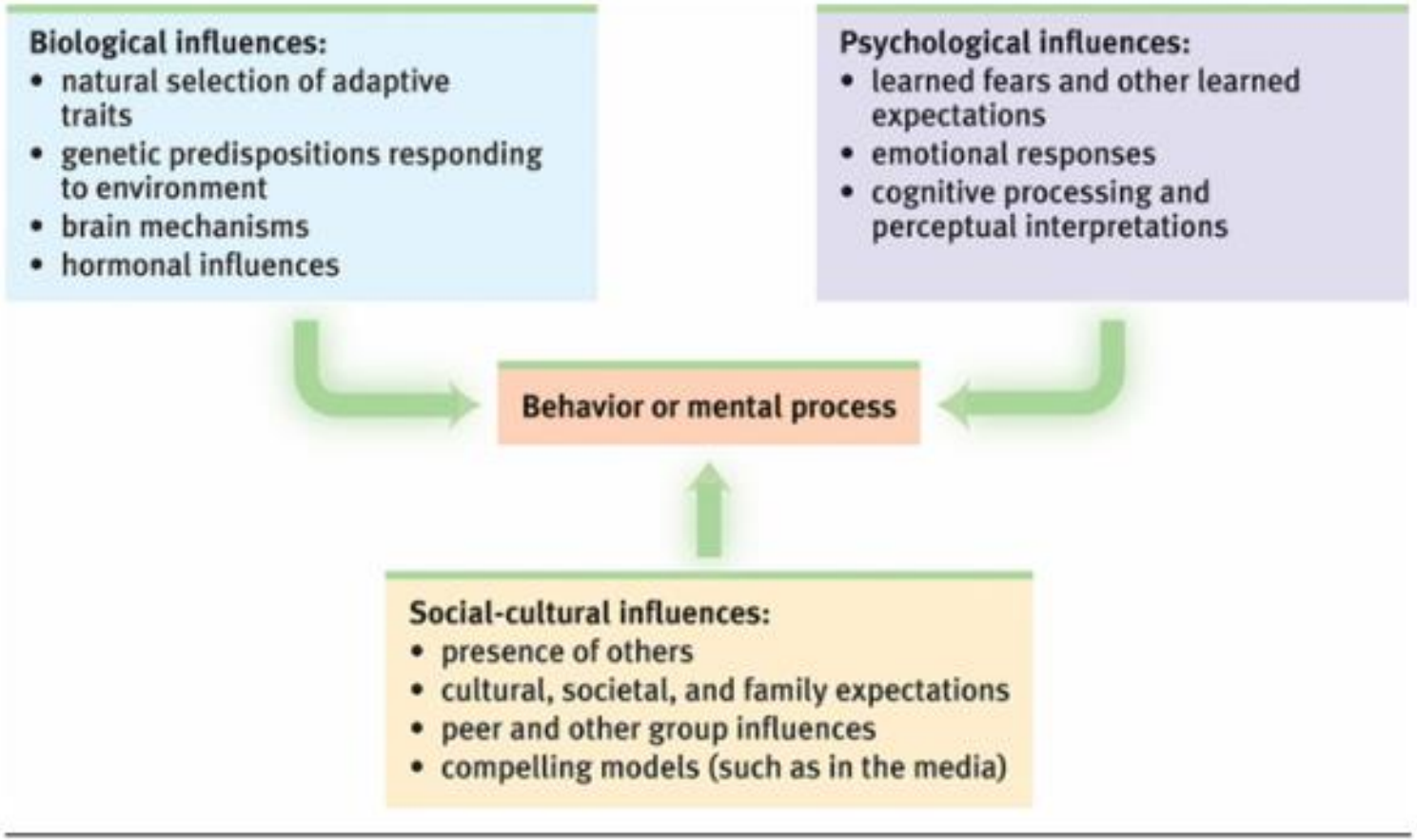

Figure 2.1 **Biopsychosocial approach** This integrated viewpoint incorporates various levels of analysis and offers a more complete picture of any given behavior or mental process.

Please watch video: [INTRO. TO PSYCHOLOGY CRASH COURSE #1]

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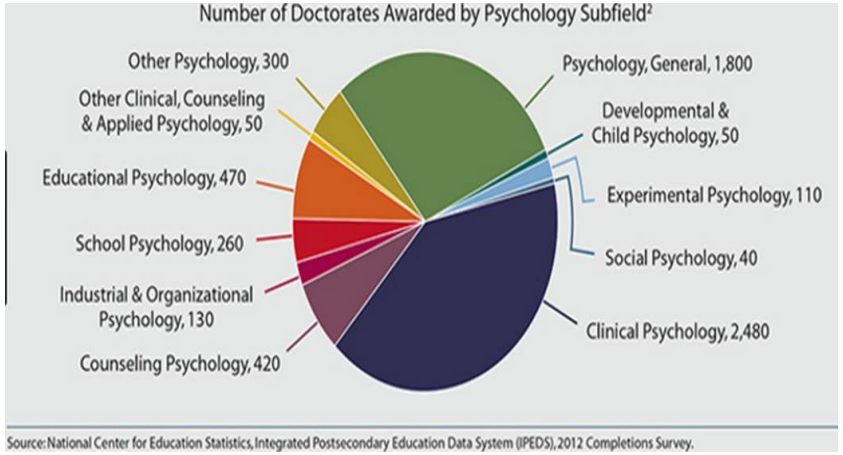
I can distinguish the different domains of psychology (e.g., biological, clinical, cognitive, counseling, developmental, educational, experimental, human factors, industrial–organizational, personality, psychometric, social).

Careers in Psychology

Psychology embraces a wide range of specialty areas. Clinical psychology and counseling attract the largest of doctoral students. Psychologists have a common quest: describing and explaining behavior and the mind underlying it. There is even a branch of psychology devoted to studying the measurement of our abilities, attitudes, and traits: **psychometrics**.

Some psychologists focus on basic research that builds the discipline's knowledge base. While others seek to apply the research.



Research Subfields

Biological	Explore links between body and mind
Developmental	Study changes from womb to tomb
Cognitive	Experiment with how we think, perceive, and solve problems
Personality	Investigate persistent traits
Social	Explore how we view and affect one another.
Positive	Explore positive emotions, positive character traits, and enabling institutions

Applied Subfields

Clinical	Assess and treat mental, emotional, and behavioral disorders
Counseling	Help people cope with challenges and crisis. Help personal and social functioning
Educational	Assess and treat mental, emotional, and behavioral disorders
Industrial-Organization	Study the relationship between people and their work environments. Develop news to improve businesses
Community	Work to create social and physical environments that are healthy for all
Psychiatrist	Are medical doctors who provide psychotherapy and may prescribe drugs

Test Tip

Psychology includes a large number of subfields and career specialties. Note that AP Psychology test writers have written several multiple-choice questions devoted to industrial-organizational psychology. Psychologists who specialize in this area study such work-place conditions as employee evaluation, job satisfaction, and leadership styles.

Test Tip

Please Read:

Shrink on the Seahawk's sideline

	Behaviorism	Cognitive	Biological	Psychodynamic	Humanistic	Social
Main focus/ Assumptions	All behavior is learnt. Animals and humans learn the same. The mind is irrelevant. (nurture/determinism Reductionism)	We are like a computer. Focus on mental processes (input-process-output) (Nature and Nurture/ Freewill)	Behavior is caused by hormones, genetics, evolution, and the CNS, "Psychological is first physiological" (Nature/Determinism/ Reductionism)	Our Childhood influences our behavior unconsciously. We have innate drives and motivations. (nature/determinism)	An individual should be seen as a whole and are driven to their full potential. Considers feelings and choices (Nurture/free will)	An individual's thoughts, feelings, and behaviors are influenced by the actual, imagined, or implied presence of others. (Nurture/free will)
Famous Psychologist and contributions	Pavlov and Watson- Classical Conditioning Thorndike- Law of Effect Skinner- operant conditioning Bandura- Social Learning Theory	Beck- depression Chomsky- Language Ellis- (REBT) Harlow- (development) Kahneman- decision-making Kohlberg (Development) Piaget (Development) Vygotsky (Development) Loftus- memory Tolman – cognitive maps	Darwin- Evolution Gazzaniga- split brain Sperry- split brain Broca- speech Wernicke- speech	Freud- unconscious drives and psychosexual development Jung- collective unconscious A. Freud- defense mechanisms Adler- inferiority complex Erikson- psychosocial development and personality Horney- theories on anxiety	Rodgers- Person Centered Therapy Maslow- Hierarchy of needs	Asch- Conformity Milgram- obedience Allport- social facilitation Festinger- cognitive dissonance Zimbardo- roles and obedience Heider- attribution theory Darley/Latane- bystander effect
Preferred method of testing	Experiments- only observable behavior to be measured	Experiments (Laboratory, field, and natural	Experiments + twin studies	Case studies & therapy (free associations, dream analysis, Freudian slips, projection test)	Qualitative data, reports, therapy	Lab Experiments Field Experiments Questionnaires Observations
Criticisms limitations	Ignores mediational processes and biology (e.g. testosterone) Too deterministic (little free-will), too reductionist ? With validity of comparing humans to animals	Ignores biology Experiments - low ecological validity can't objectively study unobservable behavior Introspection is subjective Machine reductionism	Only recognizes nature and not nurture too deterministic Doesn't recognize cognitive processes Reductionist over-simplify the huge complexity of systems	Case Studies – too Subjective /Cannot generalize results lacks scientific validity Too Deterministic (little free-will)	Ignores - Biology Unscientific – subjective E.g. cannot objectively measure self-actualization. Qualitative data is difficult to compare. Ethnocentric	Ignores biology (e.g. testosterone) Underestimates individual differences
Is it science?	yes	yes	yes	no	no	yes

Research Methods

Psychology is an empirical discipline. Psychologists develop knowledge by doing research. Research provides guidance for psychologists who develop theories to explain behavior and who apply theories to solve problems in behavior.

Myers Modules 4-6 pages 29-74

8 to 10% of AP Course

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Objectives

- ☐ I can differentiate types of research (e.g., experiments, correlational studies, survey research, naturalistic observations, case studies) with regard to purpose, strengths, and weaknesses.
- ☐ I can describe how research design drives the reasonable conclusions that can be drawn (e.g., experiments are useful for determining cause and effect; the use of experimental controls reduces alternative explanations).
- ☐ I can identify independent, dependent, confounding, and control variables in experimental designs.
- ☐ I can distinguish between random assignment of participants to conditions in experiments and random selection of participants, primarily in correlational studies and surveys.
- ☐ I can predict the validity of behavioral explanations based on the quality of research design (e.g., confounding variables limit confidence in research conclusions).
- ☐ I can distinguish the purposes of descriptive statistics and inferential statistics.
- ☐ I can apply basic descriptive statistical concepts, including interpreting and constructing graphs and calculating simple descriptive statistics (e.g., measures of central tendency, standard deviation).
- ☐ I can discuss the value of reliance on operational definitions and measurement in behavioral research.
- ☐ I can identify how ethical issues inform and constrain research practices.
- ☐ I can describe how ethical and legal guidelines (e.g., those provided by the American Psychological Association, federal regulations, local institutional review boards) protect research participants and promote sound ethical practice.

Define and Apply the following the following Vocab and/or concepts

- hindsight bias
- critical thinking
- theory
- hypothesis
- operational definition
- replication
- case study
- naturalistic observation
- survey
- sampling bias
- population
- random sample
- correlation
- correlation coefficient
- scatterplot
- illusory correlation
- experiment
- experimental group
- control group
- random assignment
- double-blind procedure
- placebo effect
- independent variable
- confounding variable
- dependent variable
- validity
- descriptive statistics
- mode
- mean
- median
- skewed distribution
- range
- standard deviation
- normal curve
- inferential statistics
- statistical significance
- culture
- informed consent
- debriefing

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Since the beginning of mankind, we have always tried to explain the world around us. Often people use heuristics when solving problems, acquiring new knowledge, and making discoveries. ***Heuristics*** are mental shortcuts that ease the cognitive load of making a decision. Examples of this method include using a rule of thumb, an educated guess, an intuitive judgment, a guesstimate, stereotyping, profiling, or common sense.

Although the use of heuristics may be deemed a common sense approach they are not guaranteed to be optimal or perfect and often lead to cognitive bias. If Psychology is a science it must be based on research, therefore researchers must avoid using heuristics and bias to explain psychological phenomena. Over the years scholars have identified hundreds of heuristics and cognitive bias (the unit on cognition takes an in-depth look at this topic). The chart below outlines a few that may result in ***experimenter bias*** and directly impact research findings and our understanding of psychology.

Heuristic or Bias	Explanation	Examples and or impacts
Overconfidence	Having too much confidence in our abilities and specifically our ability to predict outcomes. Experts are prone to this due to perceived knowledge	We have a tendency to place too much confidence in our ability to predict the future. Studies show that we are not very good at predicting human behavior. Stock traders, sports prognosticators, and psychologists are all susceptible to this. "I can predict the movement of heavenly bodies, but not the madness of men."- Newton
Confirmation Bias	The tendency to overweight, seek out, or more readily recall information that confirms our preconceived beliefs while ignoring the opposition	A researcher intentionally or unintentionally focuses more on evidence that supports their hypothesis. A researcher develops an experiment, equation, or explanation that better ensures that the results will be consistent with the preconceived beliefs.
Hindsight Bias	The inclination, after an event has occurred to see the event as having been predictable, even if there had been little basis for predicting it.	"I knew it all along" Just asking someone how they felt or recall information can be misleading. This leads to outcome bias, which in turn makes things more difficult for decision-makers.
Sampling Bias	Sampling bias occurs when the sample participating in the study is not representative of the general population (base rate)	A researcher trying to predict the outcome of election polls only members of "Candidate A's" political party. Based on the outcome of the poll the researcher reports that "Candidate A" is going to win.
Representative Heuristic	Estimating the likelihood of an event by comparing it to an existing prototype that already exists in our minds. Our prototype is what we think is the most relevant or typical example of the situation	When we make decisions based on representativeness, we may be likely to make more errors by overestimating the likelihood that something will occur. Just because an event or object is representative does not mean its occurrence is more probable than the base rate.
Availability Heuristic	A mental shortcut that causes individuals to rely more on information that comes to mind first ignoring base rates. Least effort of thought.	A researcher is conducting a clinical study on mental illnesses. This researcher has recently heard news stories on antisocial personality disorder. As a result, she ends up incorrectly flagging several participants in the sample as having an antisocial personality disorder, even if this mental illness is rare in the general population.
Clustering illusion	The is the tendency to see patterns in random events. It is key to gambling fallacies. Another example of ignoring base rates.	If we flipped a coin 10 times and the first 9 flips resulted in tails, the 10th flip is still 50-50 so it will be tails. We try to make sense of the world around us and we do this by looking for patterns.

Opposites Attract **or** **Birds of a feather flock together**

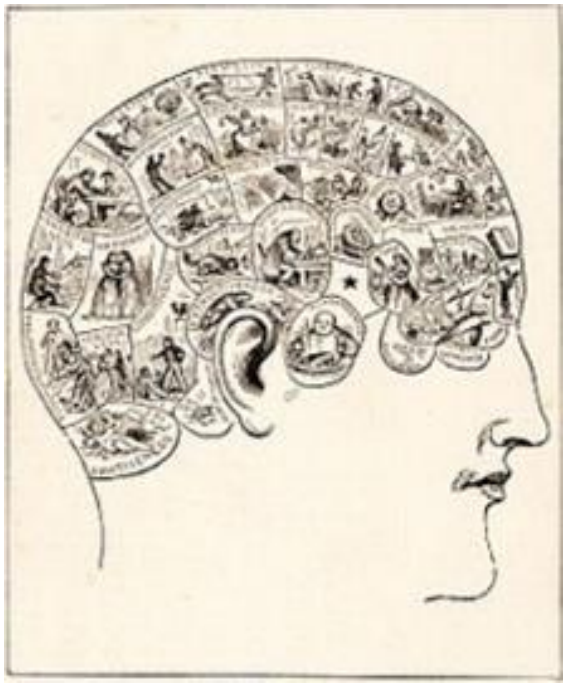
Out of sight, out of mind **or** **Absence makes the heart grow fonder**

Common sense and intuition might lead us to questions but they don't provide us with proof. There may be some anecdotal evidence for each of the statements above but are they the exception or the rule? As a student of anything and specifically psychology, be a skeptic. Doubt EVERYTHING. Be a ***critical thinker***. Critical thinkers do not blindly accept arguments and conclusions. Rather they examine assumptions, assess sources, discern hidden values, evaluate evidence, and assess conclusions. We are not born with skills. To perform a skill at a high level it must first be learned and then practiced. Critical thinking is a skill, it isn't natural. The natural tendency is to use the heuristic to conserve mental energy, force yourself to pay attention to your thought process, and put effort into your thinking.

If psychologists intend for their subject to be classified as a science and not a * pseudoscience they must follow the procedures and principles of science.

During the 1820s, phrenologists claimed the mind was located in areas of the brain, and were attacked for doubting that mind came from the nonmaterial soul. Their idea of reading "bumps" in the skull to predict personality traits was later discredited. Phrenology has first termed a pseudoscience in 1843 and continues to be considered so.

Psychologists arm their scientific attitudes with the scientific method- a self-correcting process for evaluating ideas with observation and analysis. In their attempt to describe and explain human nature, psychologists welcome hunches and plausible-sounding theories. And they put them to the test. If a theory works- if the Data support its predictions- so much the better for that theory. If the predictions fail, the theory will be revised or rejected.



Please Watch video: PSYCHOLOGY RESEARCH METHODS

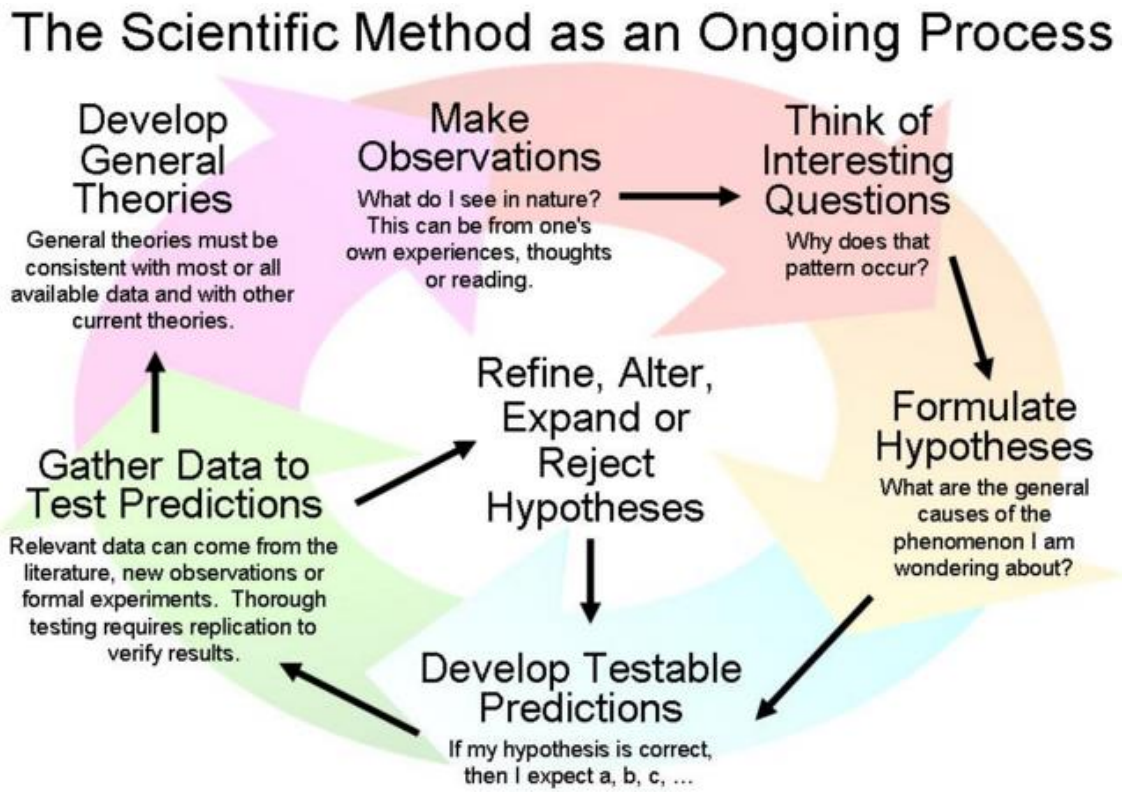
* Pseudoscience consists of statements, beliefs, or practices that are claimed to be scientific and factual in the absence of evidence gathered and constrained by appropriate scientific methods. Pseudoscience is often characterized by the following: contradictory, exaggerated or unfalsifiable claims; reliance on confirmation bias rather than rigorous attempts at refutation; lack of openness to evaluation by other experts; and absence of systematic practices when developing theories. The term pseudoscience is often considered pejorative because it suggests something is being presented as science inaccurately or even deceptively. Those described as practicing or advocating pseudoscience often dispute the characterization.

The Scientific Method

In science, a ***theory*** explains behaviors or events by offering ideas that what we have observed. By organizing isolated facts, a theory simplifies. By linking facts with deeper principles, a theory offers a useful summary. As we connect the observed dots, a coherent picture emerges. Any theory, no matter how plausible must be put to the test. A good theory produces testable predictions, call ***hypotheses***. A hypothesis is a tentative statement that describes the relationship between two or more variables. A hypothesis must be testable, verifiable, and refutable.

At the core of science lies a problem-solving approach called the scientific method. The *scientific method* has five basic steps, plus one feedback step:

1. Make an observation.
2. Ask a question.
3. Form a **hypothesis** or testable explanation.
4. Make a prediction based on the hypothesis.
5. Test the prediction.
Iterate: use the results to make new hypotheses or predictions.



The scientific method is used in all sciences—including chemistry, physics, geology, and psychology. The scientists in these fields ask different questions and perform different tests. However, they use the same core approach to find answers that are logical and supported by evidence.

For a study to have scientific value others must be able to replicate it. Usually, ***replication*** involves the same study but with different participants and situations. The purpose is to determine if the results of the initial study are reliable.

Another criterion that distinguishes science from non-science is ***falsifiability***. Statements, hypotheses, or theories have falsifiability or refutability if there is the inherent possibility that they can be proven false. That is if it is possible to conceive of an observation or an argument that negates them.

For example, if someone claims that there is an invisible monster in their house, there is no physical test to refute the claim of the presence of this monster. Since there isn't a test, nobody can prove that the initial claim is wrong. The inability to invalidate a hypothesis doesn't make the hypothesis true. Even if the claim was in fact true it falls outside the realm of scientific inquiry.

I can differentiate types of research (e.g., experiments, correlational studies, survey research, naturalistic observations, and case studies) with regard to purpose, strengths, and weaknesses.

DESCRIPTIVE RESEARCH

Descriptive research includes methods that enable researchers to observe and describe behaviors and mental processes without manipulating variables. Descriptive methods do not enable researchers to establish cause-and-effect relationships.

NATURALISTIC OBSERVATION

In a ***naturalistic observation***, researchers unobtrusively observe the behavior of subjects as it occurs in a real social setting. Naturalistic observation provides a slice of life that can be very revealing. However, it is important to remember that naturalistic observations are descriptive and do not explain behavior. It is important to note that people often act differently when they know that they are being watched.

Students often confuse naturalistic observation with field experiments. Both involve doing research out in the world. However, in naturalistic observation, the researchers do not impact the behavior of the participants at all. In contrast, in field experiments, as in all experiments, the researcher has manipulated the independent variable and attempted to eliminate as many confounding variables as possible.

I can distinguish between random assignment of participants to conditions in experiments and random selection (sampling) of participants, primarily in correlational studies and surveys.

SURVEYS

A research technique that uses questionnaires or interviews or a combination of the two to assess the behavior, attitudes, and opinions of a large number of people. The entire group that a researcher wants to study is called a ***population***.

Researchers generally question only a sample of the population whose opinions they seek to assess. A ***random sample***, in which every person in the population has an equal chance of participating, helps minimize bias and ensure that the sample is representative. ***Sampling bias*** occurs when the sample participating in the study is not representative of the general population

Remember surveys collect self-reported attitudes or behaviors of a group. It is important to note that survey respondents often report that they are healthier, happier, and less prejudiced than would be expected based on the results of other types of research. This phenomenon is known as the social desirability bias. Another consideration is the wording effect, in that even subtle changes to the wording of a question or the order of questions can have significant impacts on the outcomes.

CASE STUDIES

A ***case study*** is an in-depth examination of a single research participant. Case studies enable researchers to obtain detailed knowledge about a person or a small group. They also provide an opportunity to conduct in-depth studies of rare and unusual cases. Case studies cannot be used to establish cause-and-effect relationships. They are susceptible to inaccurate reporting and the subject's biased views. While case studies allow researchers to get the richest possible picture of what they are studying, the focus on a single individual or small group means that the findings cannot be generalized to a larger population.

STUDIES OF DEVELOPMENT

The ***longitudinal method*** measures a single individual or group of individuals over an extended period of time. For example, a longitudinal study of intelligence would retest the same people over a period of years. Longitudinal studies provide in-depth information but can be expensive and time-consuming.

The ***cross-sectional method*** compares individuals of various ages at one point in time. For example, a cross-sectional study of achievement motivation would test eighth, tenth, and twelfth-grade students at the beginning of the school year. Cross-sectional studies provide information about age differences. However, it is very difficult to make generalizations since cross-sectional studies measure behavior at only one point in time.

Research Method	Basic Purpose	How Conducted	What Is Manipulated	Strengths	Weaknesses
Descriptive	To observe and record behavior	Case studies, surveys, or naturalistic observations	Nothing	Case studies require only one participant; surveys may be done fairly quickly and inexpensively (compared to experiments); naturalistic observations may be done when it is not ethical to manipulate variables.	No control of variables; single cases may be misleading

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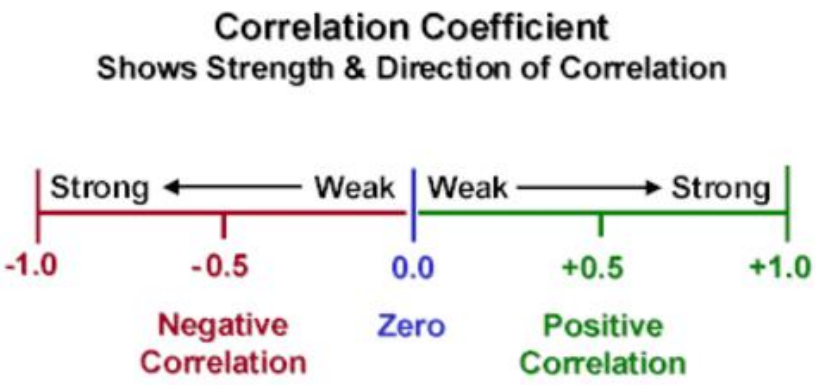
CORRELATION STUDIES

In ***correlation studies,*** researchers observe or measure a relationship between variables in which changes in one variable are reflected in changes in the other variable. It is important to note that in correlation studies researchers do not directly manipulate the variables. Correlations can be used to analyze the data gathered in any type of descriptive method.

A correlation expresses a relationship between two variables without ascribing a cause. Correlations can be either positive or negative. A ***positive correlation*** between two things means that the presence of one thing predicts the presence of the other. Or in other words, a positive correlation indicates that two variables move or vary in the same direction. For example, studies have found a positive relationship between smoking and the incidence of lung cancer. That is, as the frequency of smoking increases so does the incidence of lung cancer.

A ***negative correlation*** means that the presence of one thing predicts the absence of the other. Indicates that two variables move or vary in opposite directions. For example, studies have found a negative correlation between the level of education and anger. That is, as the level of education increases expressions of anger decrease.

Correlations may be either strong or weak. The strength of a correlation can be computed by a statistic called the ***correlation coefficient***. Correlation coefficients range from −1 and +1 where −1 is a perfect, negative correlation and +1 is a perfect, positive correlation. Both −1 and +1 denote equally strong correlations. The number 0 denotes the weakest possible correlation—no correlation—which means that knowing something about one variable tells you nothing about the other.



Which of the following is the strongest correlation coefficient: –0.83, +0.10 or +0.64? The answer is –0.83. Remember that correlations become stronger as they approach either –1.0 or +1.0. A negative correlation of –0.83 means that there is a very strong inverse relationship. Remember, the strength of the correlation weakens as the correlation coefficient approaches 0.00.

Test Tip

TIP
Students often believe strong correlations correspond to positive numbers. Do not forget that –.92 is exactly as strong a correlation as +.92.

Test Tip

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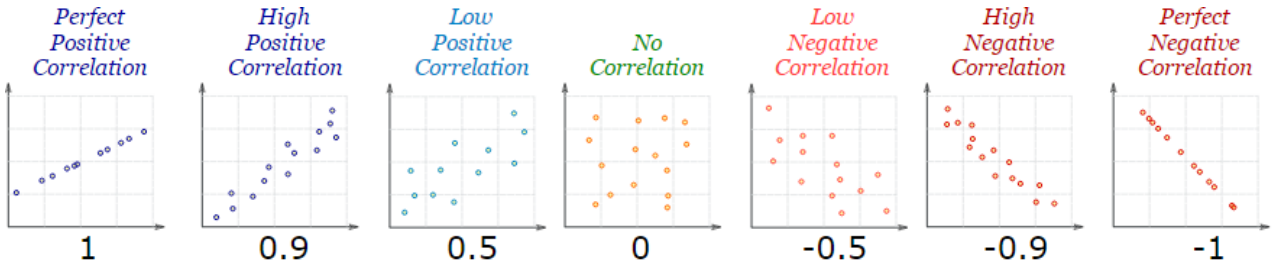
A correlation may be graphed using a ***scatter plot***. A scatter plot graphs pairs of values, one on the y-axis and one on the x-axis. For instance, the number of hours a group of people study per week could be plotted on the x-axis while their GPAs could be plotted on the y-axis. The result would be a series of points called a scatter plot. The closer the points come to falling on a straight line, the stronger the correlation. The line of best fit, or regression line, is the line drawn through the scatter plot that minimizes the distance of all the points from the line. When the line slopes upward, from left to right, it indicates a positive correlation. A downward slope evidences a negative correlation.



Correlation studies indicate the possibility of a cause-and-effect relationship. ***Remember that correlation does not prove causation***. For example, research studies have found a moderate correlation of +0.4 between SAT scores and college grades. However, this correlation does not tell us if high SAT scores cause high college grades. Other known and unknown factors, such as the level of achievement motivation and the presence or absence of tutors, could be responsible for both the SAT scores and the college grades.

Please watch video: CORRELATION AND CAUSATION

Illusory correlation is the phenomenon of perceiving a relationship between variables (typically people, events, or behaviors) even when no such relationship exists. For example, there is a positive correlation between the amount a city consumes ice cream and its murder rate. Is eating ice cream causing people to turn to murder?

Click on the following link to see some ridiculous correlations. http://www.tylervigen.com/spurious-correlations

Please watch video: THE DANGER OF MIXING UP CAUSALITY AND CORRELATION: IONICA SMEETS AT TEDXDELFT

Research Method	Basic Purpose	How Conducted	What Is Manipulated	Strengths	Weaknesses
Correlational	To detect naturally occurring relationships; to assess how well one variable predicts another	Compute statistical association, sometimes among survey responses	Nothing	Works with large groups of data, and may be used in situations where an experiment would not be ethical or possible	Does not specify cause and effect

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I can identify independent, dependent, confounding, and control variables in experimental designs.

THE EXPERIMENTAL METHOD

An experiment is a carefully controlled method of investigation used to establish a cause-and-effect relationship. The experimenter purposely manipulates, and controls selected variables in order to determine cause and effect.

Test Tip

Independent and dependent variables are two of the most frequently tested concepts on the AP Psychology exam. Every released exam contains multiple-choice questions asking you to identify independent and dependent variables in a sample research design. In addition, there is a better than 50–50 chance that your exam will include a free-response question asking you to design and/or describe an experiment. Your description must include a discussion of independent and dependent variables.

As previously mentioned, a hypothesis is a tentative statement that describes the relationship between two or more variables. A hypothesis must be testable, verifiable, and refutable. The ***independent variable*** is the factor that is manipulated or controlled by the experimenter. The ***dependent variable*** is the factor that is measured by the experimenter. It is affected by and thus dependent on the independent variable.

For example, An experimenter wants to determine the relationship between rehearsal/repetition of a list of definitions of difficult SAT vocabulary words and later recall of these definitions. The independent variable in this study is the amount of rehearsal/repetition. The dependent variable in this study is the recall of correct definitions.

I can discuss the value of reliance on operational definitions and measurement in behavioral research.

Operational Definitions

An operational definition is a precise description of how the variable in a study will be manipulated and measured.

For example, in a study measuring the relationship between rehearsal/repetition and recall of difficult SAT vocabulary words, rehearsal might be operationally defined as the number of times the subject reads aloud a list of words. The difficult words might be operationally defined as answers to Level 5 SAT sentence completion questions. The recall might be operationally defined as the percentage of words that are correctly defined.

Tip: Remember **"If-Then"** **If I vary this** **then D is varies**

Independent Variable **Dependent Variable**

If a student **rehearses difficult SAT words more than 10 times** then they will **recall the same words at a higher percentage**.

Recall: For a study to have scientific value others must be able to replicate it. Strong, well-written operational definitions allow others to replicate the research.

I can predict the validity of behavioral explanations based on the quality of research design (e.g., confounding variables limit confidence in research conclusions).

I can describe how research design drives the reasonable conclusions that can be drawn (e.g., experiments are useful for determining cause and effect; the use of experimental controls reduces alternative explanations).

PARTICIPANTS: EXPERIMENTAL AND CONTROL GROUPS

The ***experimental group*** comprises the participants who are exposed to the independent variable. The ***control group*** comprises the participants who are exposed to all experimental conditions except the independent variable. This enables the experimenter to make comparisons with the experimental group. Unlike correlation studies, which uncover naturally occurring relationships, an experiment manipulates a variable to determine its effect. To determine its effect, the researcher must control for other variables.

When conducting a controlled experiment it is important to note that there may be factors other than the independent variable that might produce an effect in an experiment, these other factors are called ***confounding variables***. Put differently, in a controlled experiment, confounding or extraneous variables are differences between the experimental group and the control group other than the independent variable. Confounding variables have an unwanted influence on the outcome of an experiment.

For example, in a study measuring the impact of playing violent video games on the frequency of aggression in children, confounding variables could include the income level of the children's parents and the incidence of child abuse.

Just as random sampling is important for surveys and correlational studies, random assignment is imperative for a legit experiment. ***Random assignment*** refers to assigning participants to experimental and control groups by chance, thus minimizing preexisting differences between the different groups.

Often in medicine, one group will receive the treatment and the other the placebo. Often these studies use a double-blind In the procedure, neither the participants nor the researcher knows who is receiving the treatment. Researchers must be aware of the ***placebo effect***, this occurs when the participant's expectations alone impact the results.

Research Method	Basic Purpose	How Conducted	What Is Manipulated	Strengths	Weaknesses
Experimental	To explore cause and effect	Manipulate one or more factors; use random assignment	The independent variable(s)	Specifies cause and effect, and variables are controlled	Sometimes not feasible; results may not generalize to other contexts; not ethical to manipulate certain variables

Ultimately, the goal of any experimental design is ***validity***, which means the experiment will test what it is supposed to test.

Good research is both valid and ***reliable***. Research is valid when it measures what the researcher set out to measure; it is accurate. Research is ***reliable*** when it can be replicated; it is consistent. If the researcher conducted the same research in the same way, the researcher would get similar results.

Comparing Research Methods

Research Method	Basic Purpose	How Conducted	What Is Manipulated	Strengths	Weaknesses
Descriptive	To observe and record behavior	Case studies, surveys, or naturalistic observations	Nothing	Case studies require only one participant; surveys may be done fairly quickly and inexpensively (compared to experiments); naturalistic observations may be done when it is not ethical to manipulate variables.	No control of variables; single cases may be misleading
Correlational	To detect naturally occurring relationships; to assess how well one variable predicts another	Compute statistical association, sometimes among survey responses	Nothing	Works with large groups of data, and may be used in situations where an experiment would not be ethical or possible	Does not specify cause and effect
Experimental	To explore cause and effect	Manipulate one or more factors; use random assignment	The independent variable(s)	Specifies cause and effect, and variables are controlled	Sometimes not feasible; results may not generalize to other contexts; not ethical to manipulate certain variables

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I can identify how ethical issues inform and constrain research practices.

I can describe how ethical and legal guidelines (e.g., those provided by the American Psychological Association, federal regulations, local institutional review boards) protect research participants and promote sound ethical practice.

APA ETHICAL GUIDELINES

Ethical considerations are a major component in research design. Researchers should know and understand the ethical guidelines established by the APA (American Psychological Association) for human and animal research and be prepared to apply the concepts to specific research designs.

1. Any type of academic research must first propose the study to the ethics board or institutional review board (IRB) at the institution.
2. The IRB reviews research proposals for ethical violations and/or procedural errors.
3. This board ultimately gives researchers permission to go ahead with the research or requires them to revise their procedures.

Animal Research

Groups advocating the ethical treatment of animals are focusing more and more attention on how animals are treated in laboratory experiments. The APA developed strict guidelines about what animals could be tested and how they could be used in psychological research. Ethical psychological studies using animals must meet the following requirements:

They must have a clear scientific purpose.
The research must answer a specific, important scientific question.
Animals chosen must be best suited to answer the question at hand.
They must care for and house animals in a humane way.
They must acquire animal subjects legally. Animals must be purchased from accredited companies.
If wild animals must be used, they need to be trapped in a humane manner.
They must design experimental procedures that employ the least amount of suffering feasible.

Human Research

Research involving human subjects must meet the following standards:

No coercion—Participation should be voluntary.

Informed consent—Participants must know that they are involved in the research and give their consent. If the participants are deceived in any way about the nature of the study, the deception must not be so extreme as to invalidate the informed consent. The research the participants thought they were consenting to must be similar enough to the actual study to give the informed consent meaning. Also, researchers must be very careful about the trauma deception may cause.

Anonymity or confidentiality—Participants' privacy must be protected. Their identities and actions must not be revealed by the researcher. Participants have anonymity when the researchers do not collect any data that enable them to match a person's responses with his or her name. In some cases, such as interview studies, a researcher cannot promise anonymity but instead guarantees confidentiality, that the researcher will not identify the source of any of the data.

Risk—Participants cannot be placed at significant mental or physical risk. Typically, it is considered permissible for participants to experience temporary discomfort or stress but activities that might cause someone long-term mental or physical harm must be avoided. This clause requires interpretation by the review board. Some institutions might allow a level of risk other boards might not allow. This consideration was highlighted by Stanley Milgram's obedience studies in the 1970s in which participants thought they were causing significant harm or death to other participants.

Debriefing—After the study, participants should be told the purpose of the study and provided with ways to contact the researchers about the results. When research involves deception, it is particularly important to conduct a thorough debriefing.

Please Watch video: 10 PSYCHOLOGICAL EXPERIMENTS THAT WENT HORRIBLY WRONG

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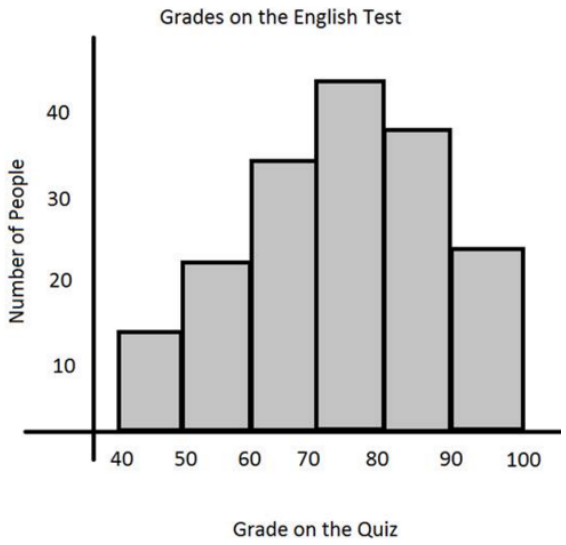
I can distinguish the purposes of descriptive statistics and inferential statistics.

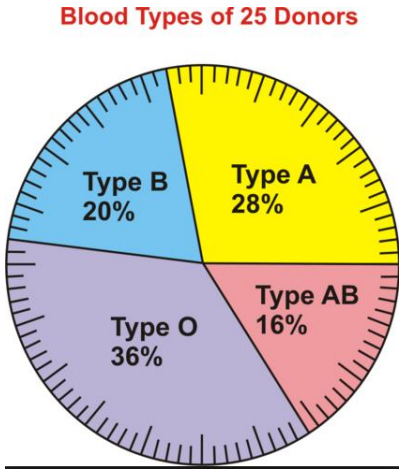
Statistics is a branch of mathematics dealing with the collection, analysis, interpretation, presentation, and organization of data. It is important for people to have a healthy understanding of statistics. Statistical illiteracy leads to health scares, misunderstandings of the world, and poor policy. Furthermore, off-top-of-the-head guesses can also lead to trouble.

For example, if it is reported that a new drug has led to a 100% increase in blood clots, it may scare people off from using it. But a 100% increase could be referring to an increase from 1 out of 700 to 2 out of 7000.

Once researchers gather data, then they may use descriptive statistics to organize the data meaningfully. ***Descriptive statistics*** are used to describe the basic features of the data in a study. They provide simple summaries of the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. Descriptive Statistics are used to present quantitative descriptions in a manageable form. One way to do this is to convert the data into a visual depiction such as a histogram (a bar graph that shows frequency distribution) or a pie graph.



Histogram



Descriptive statistics are typically distinguished from inferential statistics. With descriptive statistics, you are simply describing what is or what the data shows. With ***inferential statistics***, you are trying to reach conclusions that extend beyond the immediate data alone. For instance, we use inferential statistics to try to infer from the sample data what the population might think. Or, we use inferential statistics to make judgments of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study. Thus, we use inferential statistics to make inferences from our data to more general conditions; we use descriptive statistics simply to describe what's going on in our data but don't say why.

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I can apply basic descriptive statistical concepts, including interpreting and constructing graphs and calculating simple descriptive statistics (e.g., measures of central tendency, and standard deviation).

Measures of Central Tendency

A measure of central tendency is a single value that attempts to describe a set of data by identifying the central position within that set of data. Measures of central tendency try to determine what is "typical." The mean, median, and mode are all valid measures of central tendency, but under different conditions, some measures of central tendency become more appropriate to use than others

Mean	***Median***	***Mode***
The sum of a set of scores in a distribution divided by the number of scores. **The mean is the average score**. The mean is the most well known measure of central tendency but it's one big disadvantage is that extreme scores have a greater impact on the mean than on the mode or the median. Any change in the highest or lowest score in any distribution must result in a change in the mean.	The score that divides a frequency distribution exactly in half, so that the same number of scores lie on each side of it. In other words, it's the middle score. If there are two middle scores, add the two scores together and divide by 2.	The most frequently occurring score in a distribution.

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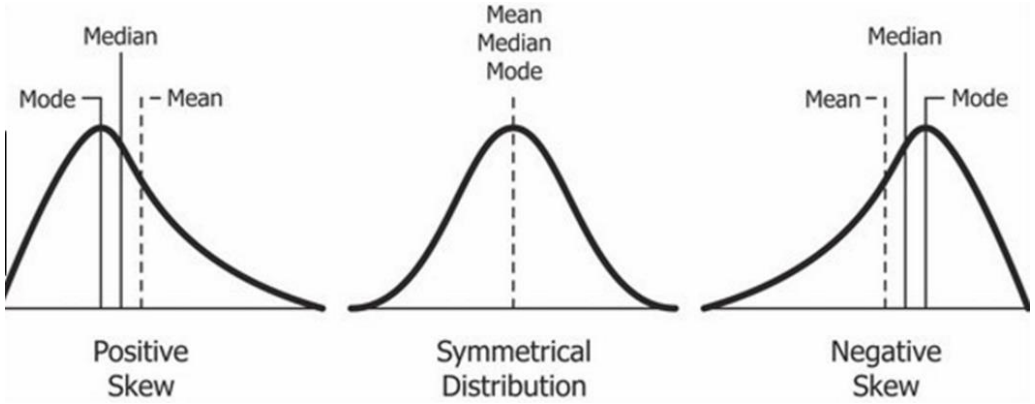
SKEWED DISTRIBUTIONS

A ***positively skewed*** distribution contains a preponderance of scores on the low end of the scale but the mean is higher due to an extreme score at the higher end. The mean will be higher than the median in a positively skewed distribution. The median is thus a better representation of central tendency than the mean in a positively skewed distribution.

A ***negatively skewed*** distribution contains a preponderance of scores on the high end of the scale but the mean is lower due to an extreme score at the lower end. The mean will be lower than the median in a negatively skewed distribution. The median is thus a better representative of central tendency than the mean in a negatively skewed distribution.



In a normal or (completely symmetrical) distribution the mode, mean, and media are identical.

You can use the following two rules to provide some information about skewness even when you cannot see a line graph of the data (i.e., all you need is the mean and the median)

1. **Rule One.** If the mean is smaller (because of a very low score) than the median, the data are skewed to the left.

2. **Rule Two**. If the mean is larger (because of a very high score) than the median, the data are skewed to the right.

Test Tip

Positive and negative skewed distributions are easy to confuse. One way to remember what a positively skewed curve looks like is to visualize a "p" lying on its back. The preponderance of scores is to the left or the low end of the scale.

Test Tip

Mental image- the tail of the skew always points to the distribution

Measures of Variation

Measures of variability are another type of descriptive statistical measure. Again, you may be familiar with some of these measures, such as the *range, variance,* and *standard deviation.* Measures of variability attempt to depict the diversity of the distribution.

The ***range*** is the simplest measure of variation to find. It is simply the highest value minus the lowest value.
RANGE = MAXIMUM - MINIMUM
Since the range only uses the largest and smallest values, it is greatly affected by extreme values, that is - it is not resistant to change

The **Variance** is the average squared difference from the mean.

***Standard deviation*:** This is the Average distance from the mean for a set of scores. The Higher the SD, the less similar the scores are. A SD = 0 means all the scores in the distribution are the same. Therefore, the smaller the standard deviation, the more confident you can be in using the mean to represent the group.

Test Tip

It is very unlikely that you will be asked to calculate the standard deviation of a set of numbers (especially without a calculator). What is important is that you know that the standard deviation is the average distance from the mean. And that the smaller the S.D. the more you can trust the mean. One rule of thumb is that the range is 4x the standard deviation. So in the unlikely event, you are asked to find the standard deviation without a calculator, simply find the range and divide by 4.

Test Tip

How to find the variance of a set of numbers

1. Work out the Mean of the number set
2. Subtract the mean from each number and square the difference
3. Work out the average of the squared differences

The Standard deviation is the squared root of the Variance

Punting distances **36 yards, 38 yards, 41 yards, and 45 yards**

1st find the mean **36 + 38 + 41 + 45 = 160** **mean 160/4 = 40 yards**

Next subtract the mean from each entry	**36- 40 = -4,**	**38- 40 = -2,**	**41- 40= +1,**	**45-40= +5**
Square each difference	**-4 x -4= 16**	**-2 x-2= 4**	**1 x1= 1**	**5x 5= 25**
The average of the square difference =	**46/4= 11.5**			

Standard Deviation is the square root of 11.5= 3.39 yards

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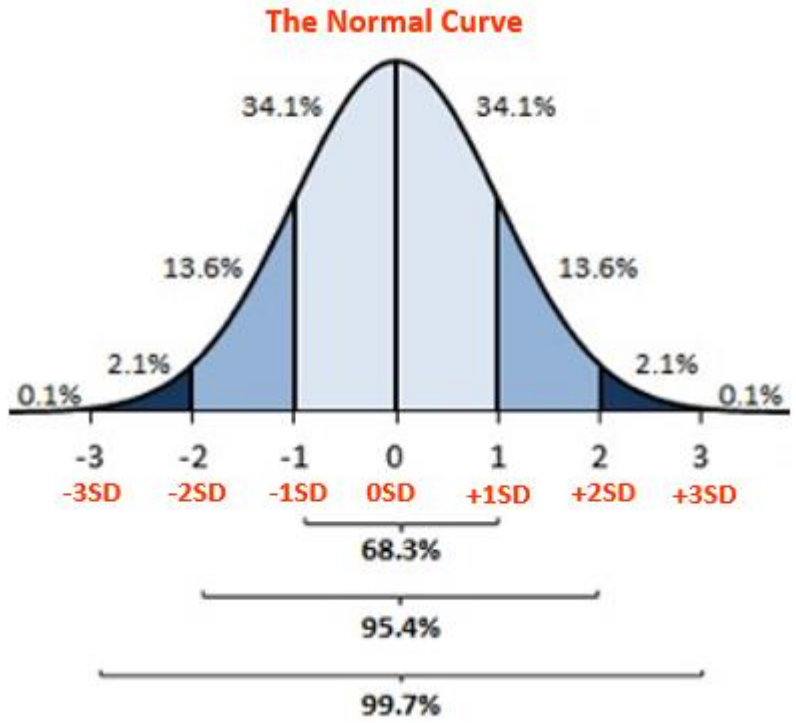
Sometimes, being able to compare scores from different distributions is important. In order to do so, you can convert scores from the different distributions into measures called *z scores*. ***Z scores*** measure the distance of a score from the mean in units of standard deviation. Scores below the mean have negative *z* scores, while scores above the mean have positive *z* scores. For instance, if Clarence scored a 72 on a test with a mean of 80 and a standard deviation of 8, Clarence's *z* score would be −1. If Maria scored an 84 on that same test, her *z* score would be +0.5.

Often in psychology, you will see reference to the normal curve. ***The normal curve*** is a theoretical bell-shaped curve for which the area under the curve lying between any two *z* scores has been predetermined. Approximately **68 percent** of scores in a normal distribution fall within one standard deviation of the mean, approximately **95 percent** of scores fall within two standard deviations of the mean, and almost **99 percent** of scores fall within three standard deviations of the mean. Knowing that the normal curve is symmetrical, and knowing the three numbers given above will allow you to calculate the approximate percentage of scores falling between any given *z* scores. For instance, approximately 47.5 percent (95/2) of scores fall between the *z* scores of 0 and +2.



Test Tip

The AP test normally has at least 1 question referring to normal distribution.

To Remember the 68-95-99 rule develop a mental picture of a 68 year old driving down I95 going 99 miles an hour

Test Tip

While z scores measure the distance of a score away from the mean, ***percentiles*** indicate the distance of a score from 0. Someone who scores in the 90th percentile on a test has scored better than 90 percent of the people who took the test. Similarly, someone who scores at the 38th percentile scored better than only 38 percent of the people who took the test. A clear relationship exists between percentiles and z scores when dealing with the normal curve. Someone who scores at the 50th percentile has a z score of 0, and someone who scores at the 98th percentile has an approximate z score of +2.

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The ***null hypothesis*** is the commonly accepted fact; it is the opposite of the alternate hypothesis (the one being tested by the research). In other words, the null hypothesis is any explanation other than the one being tested by the researcher

Researchers work to reject, nullify or disprove the null hypothesis. Researchers come up with an alternate hypothesis, one that they think explains a phenomenon, and then work to reject the null hypothesis.

Inferential Statistics

Most experiments are conducted with a small sample of subjects. Psychologists want to generalize the results from their small sample to a larger population. ***Inferential statistics*** are used to determine how likely it is that a study's outcome is due to chance and whether the outcome can be legitimately generalized to the larger population from which the sample was selected.

The purpose of inferential statistics is to help psychologists decide when their findings can be applied to the larger population. Many different inferential statistical tests exist such as t-tests, chi-square tests, and ANOVAs. They all take into account both the magnitude of the difference found and the size of the sample. However, what is most important for you to know is that all these tests yield a ***p-value***.

The smaller the *p-value*, the more significant the results. Scientists have decided that a *p-value* of .05 is the cutoff for ***statistically significant*** results. When an experiment has statistical significance it means that the observed difference probably didn't happen by chance. A *p-value* of .05 means that a 5 percent chance exists that the results occurred by chance. A *p-value* can never equal 0 because we can never be 100 percent certain that results did not happen due to chance. As a result, scientists often try to replicate their results, thus gathering more evidence that their initial findings were not due to chance.

If the p-value is .05 or lower, researchers can reject the null hypothesis, if it is greater than .05 then causation has not been determined.

Over-learning activity

Watch: JOHN GABRIELI M.I.T. LECTURE 2: SCIENCE AND RESEARCH

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Biological Bases of Behavior

An effective introduction to the relationship between physiological processes and behavior — including the influence of neural function, the nervous system and the brain, and genetic contributions to behavior — is an important element in the AP course.

Everything psychological is simultaneously biological

Myers Modules 9-15 pages 75-149

8 to 10% of AP Course

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Objectives

- ☐ **I can identify basic processes and systems in the biological bases of behavior, including parts of the neuron and the process of transmission of a signal between neurons.**
- ☐ **I can discuss the influence of drugs on neurotransmitters (e.g., reuptake mechanisms, agonists, antagonists).**
- ☐ **I can discuss the effect of the endocrine system on behavior.**
- ☐ **I can describe the nervous system and its subdivisions and functions: central and peripheral nervous systems; major brain regions, lobes, and cortical areas; brain lateralization and hemispheric specialization.**
- ☐ **I can discuss the role of neuroplasticity in traumatic brain injury.**
- ☐ **I can recount historic and contemporary research strategies and technologies that support research (e.g., case studies, split-brain research, imaging techniques).**
- ☐ **I can discuss psychology's abiding interest in how heredity, environment, and evolution work together to shape behavior.**
- ☐ **I can predict how traits and behavior can be selected for their adaptive value.**
- ☐ **I can identify key contributors (e.g., Paul Broca, Charles Darwin, Michael Gazzaniga, Roger Sperry, Carl Wernicke).**

Define and Apply the following the following Vocab and/or concepts

biological psychology
neuron
dendrites
axon
myelin sheath

action potential
refractory period
threshold
all-or-none response

synapse
neurotransmitters
reuptake
endorphins
agonist
antagonist

nervous system
central nervous system (CNS)
peripheral nervous system (PNS)
nerves
sensory (afferent) neurons
motor (efferent) neurons
interneurons
somatic nervous system
autonomic nervous
sympathetic nervous system
parasympathetic nervous system
reflex

endocrine system
hormones
adrenal glands
pituitary gland

lesion
electroencephalogram (EEG)
CT (computed tomography) scan
PET (positron emission tomography) scan
MRI (magnetic resonance imaging)
fMRI (functional MRI)

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Define and Apply the following the following Vocab and/or concepts

brainstem
medulla
thalamus
reticular formation
cerebellum
limbic system
amygdala
hypothalamus
cerebral cortex
glial cells (glia)
frontal lobes
parietal lobes
occipital lobes
temporal lobes
motor cortex
somatosensory cortex
association areas
plasticity
neurogenesis
corpus callosum
split brain

behavior genetics
environment
chromosomes
DNA (deoxyribonucleic acid)
genes
genome
identical twins
fraternal twins
molecular genetics
heritability
interaction
epigenetics
evolutionary psychology
natural selection
mutation

Key People:

Paul Broca
Charles Darwin
Michael Gazzaniga
Roger Sperry
Carl Wernick

The influence of biology (sometimes called the *neuroscience* or ***biopsychological*** *perspective*) is growing. Some researchers predict that someday psychology will be a specialty within the field of biology. An understanding of the biological principles relevant to psychology is needed not only for the AP exam but for any understanding of current psychological thinking.

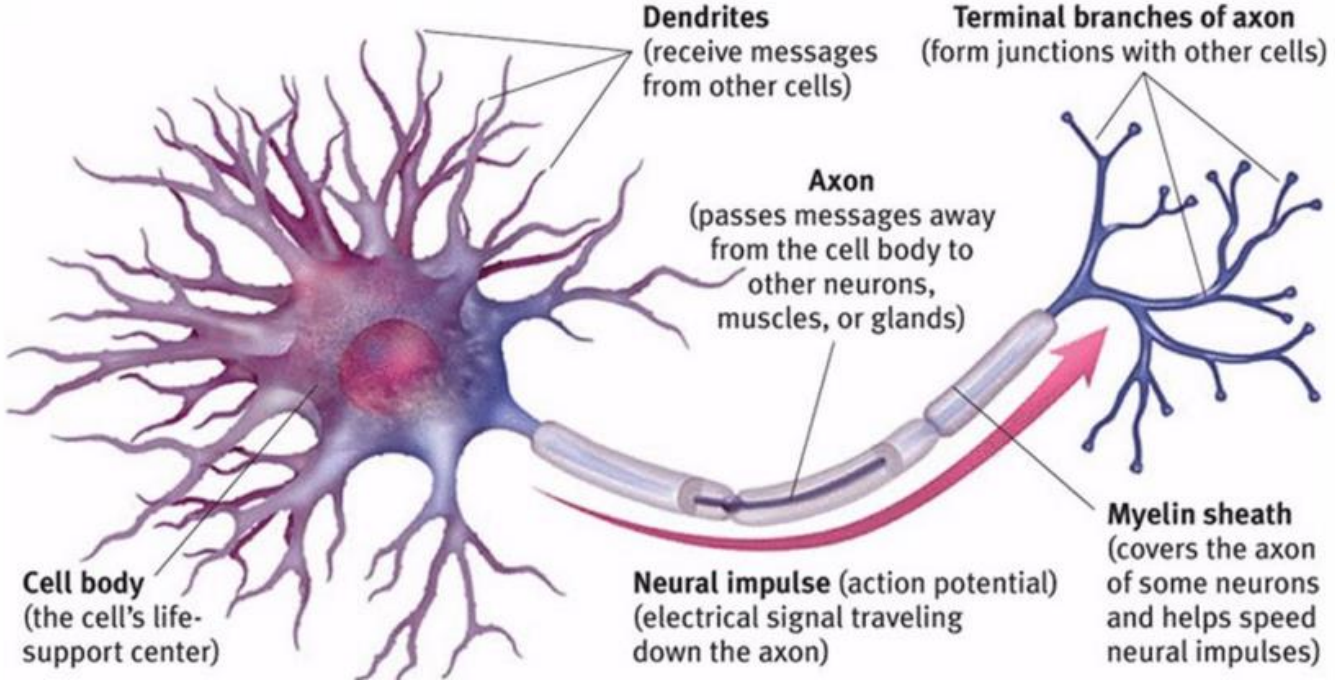
I can identify basic processes and systems in the biological bases of behavior, including parts of the neuron and the process of transmission of a signal between neurons.

Neuroanatomy refers to the study of the parts and functions of neurons. ***Neurons*** are individual nerve cells. The human brain contains about 100 billion neurons. The average neuron is a complex structure with as many as 10,000 physical connections with other cells. These cells make up our entire nervous system, from the brain to the neurons that fire when you stub your toe. Every neuron is made up of discrete parts.

The ***Dendrites*** are the neuron's busy, branching extensions that receive messages and conduct impulses toward the cell body. Most neurons have numerous dendrites, which increase their surface area, allowing each neuron to receive input from many other neurons.

The ***Cell body*** (soma**)** is The part of the neuron that contains the nucleus, which directs the manufacture of substances that the neuron needs for grown and maintained.

The ***Axon*** is part of the neuron that carries information away from the Cell body toward other cells. Although extremely thin (1/10,000th of an Inch—a human hair by comparison is 1/1000th of an inch), axons can be Very long. Some extend more than 3 feet through the body.



Tip: To Remember the order of the main structures of the neuron- Think DCBA- out Dendrites – Cell Body- Axon – Out

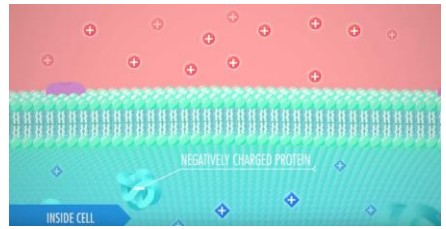
The ***myelin sheath*** is a fatty covering around the axon of some neurons that speeds neural impulses. Myelin sheath serves as insulation around the ***Schwann Cells*** (a chain of cells that propagates the nervous signal) As myelin is laid down up to about age 25, neural efficiency, judgment, and self-control grow. If myelin degenerates, *multiple sclerosis* results: communication to muscles slows, with eventual loss of muscle control. The myelin sheath is formed by the **Glial cells**. Glial cells (glia): provide support, nutritional benefits, and other functions, and keep neurons running smoothly.

Terminal buttons (also called end buttons, terminal branches of the axon, and synaptic knobs) — the branched end of the axon that contains neurotransmitters.

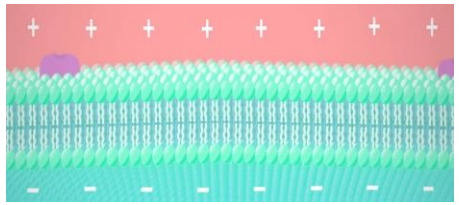
Please Watch: THE ANATOMY OF A NEURON

Our bodies are electrically neutral. Communication between neurons is electrochemical, neurons communicate and transmit information from one to the other via electrical impulses. This happens in response to signals from our senses or chemical signals from neighboring neurons.

NEURAL TRANSMISSION



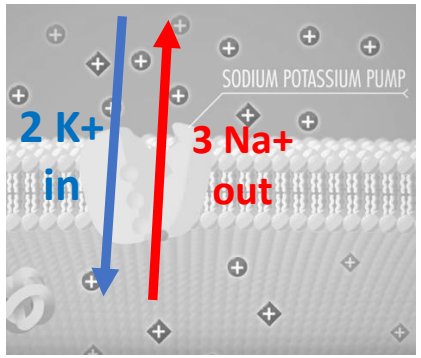
Voltage and the Neuron: There is fluid both inside and outside of the axon and electrically charged sodium (Na) and potassium (K) ions (electrically charged atoms) are floating in that fluid. Outside there are many positively charged sodium ions and inside there at also positively charged potassium ions. In addition to the K+ ions, there Are also negatively charged proteins. <u>As a result, the inside of the cell membrane is negative compared to the outside</u>.



-70 mV
The Membrane is Polarized

Voltage is the measure of potential energy generated by different charges. Each Axon is like a little battery with its own positive and negative charges. All it needs is an event to bring those charges together.

Resting Potential is the resting state of a neuron when it is not transmitting information. A cell at rest has a resting membrane potential of approximately a negative charge of about – 70 millivolts (mV). The resting membrane potential established a negative charge along the interior of the axon and the rest of the neuron. The cell is described as ***polarized*** (negative inside-positive outside).



The -70 mV is maintained by the Sodium-potassium pump. The Sodium-potassium pump regulates the amount of Na+ and K + in and out of the cell. For every 2 potassium ions it pumps into the cell, it pumps out 3 sodium ions.

This results in an electrochemical gradient (imbalance). Nature hates gradients and it wants balance.

The membrane surrounding the axon contains thousands of gates called ion channels that when activated allow for ions to pass in and out of the cell. There are various types of ion channels, for our purpose we will focus on voltage-gated channels. They open and close at various membrane potentials. For example Na+ ion channels open at -55 mV. When open, ions move into the cell and this movement is the key to all electrical events in the neuron.

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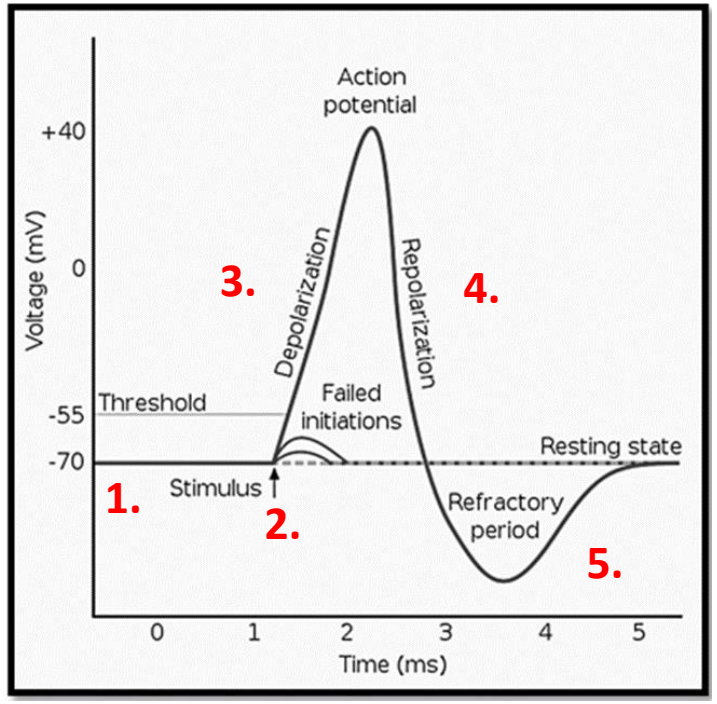
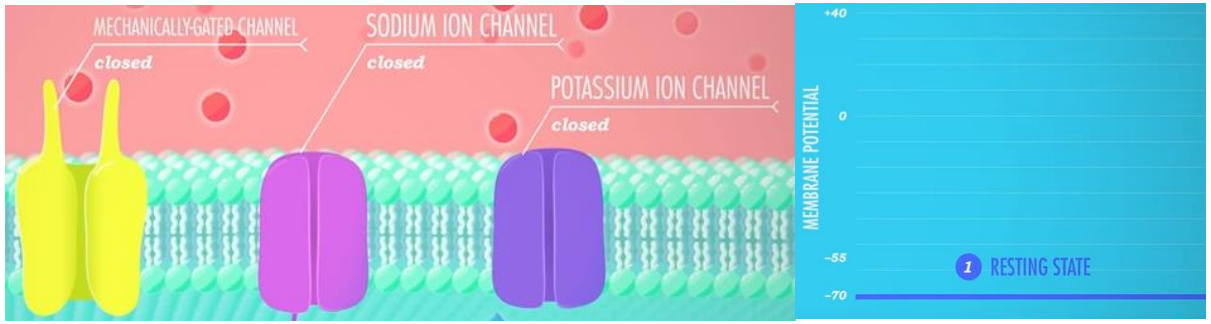
An ***action potential*** (nerve impulse) is a distribution of the membrane potential. Look at it as a wave of depolarization of the plasm membrane that travels down the axon. Depolarization is a change in the membrane potential from the resting membrane potential to a less negative, or even positive potential. The change in membrane potential during the passage of action potential is caused by the movement of ions into and out of the neuron through ion channels, this all leads to the eventual release of neurotransmitters.

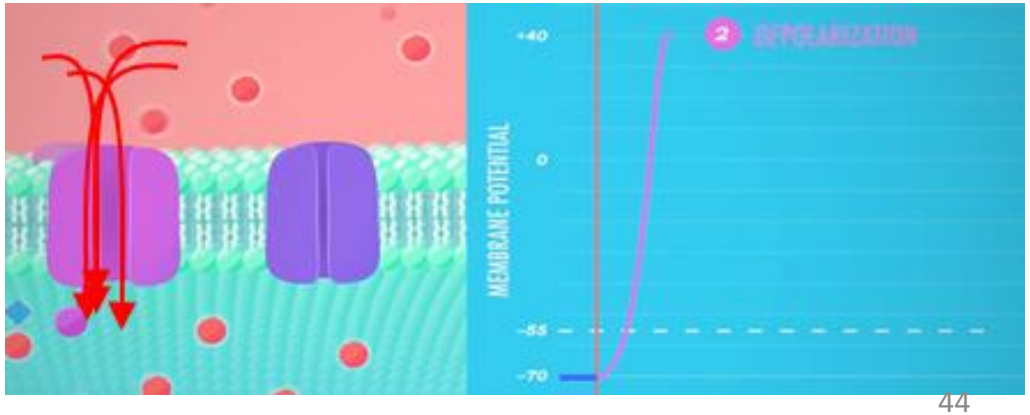


1. Resting Potential (Polarized)

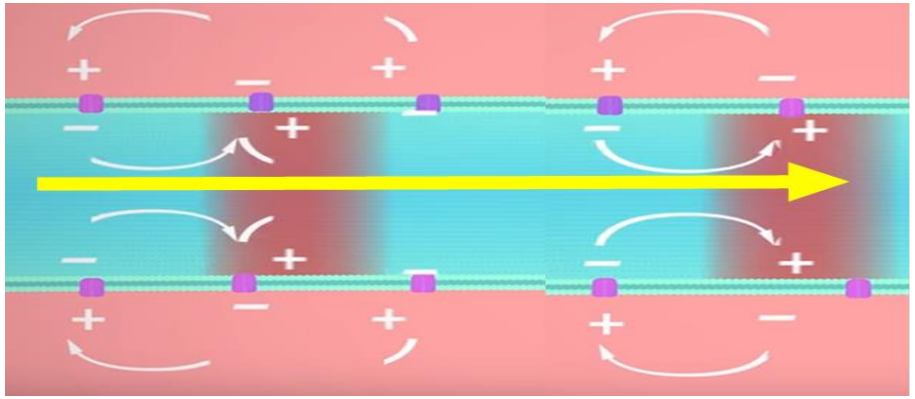


2. A Stimulus triggers a response, some NA+ move into some ion channels depolarization begins

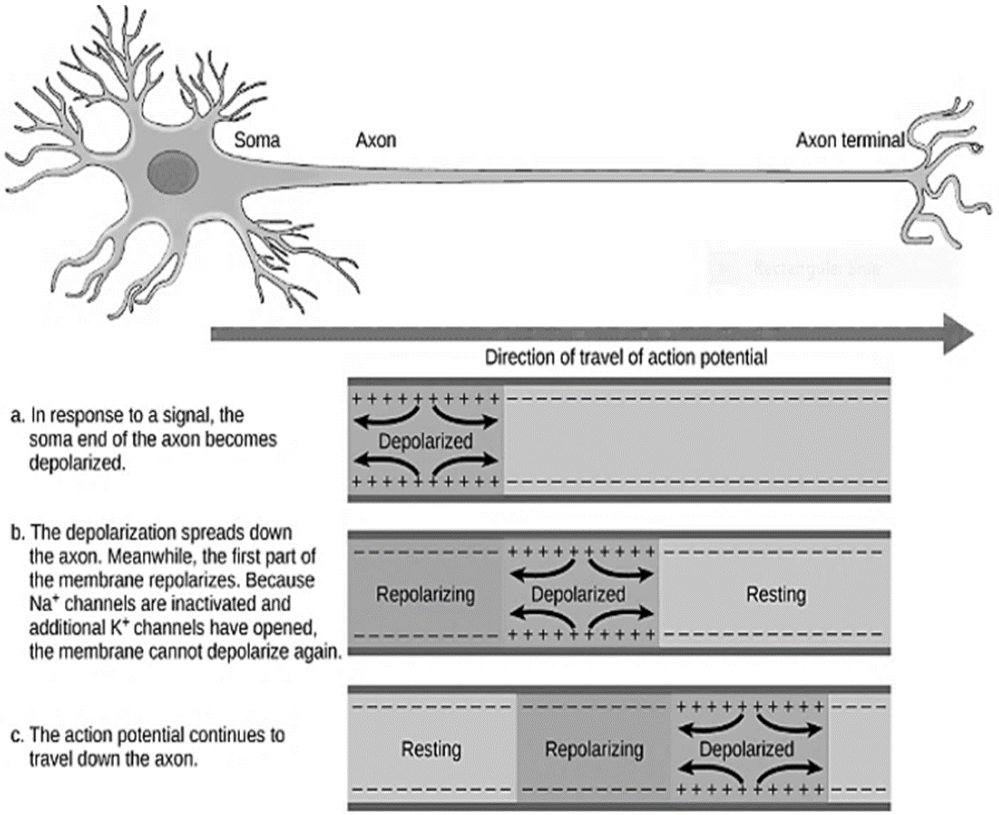
3. If the stimulus and resulting Depolarization are strong enough to reach its ***threshold*** (the level of stimulation required to trigger a neural impulse) at -55 mV, the action potential becomes an ***all-or-nothing*** principle meaning, it fires and moves all the way down the axon without losing any of its intensity. The cell becomes depolarized to the point of giving it a positive charge.



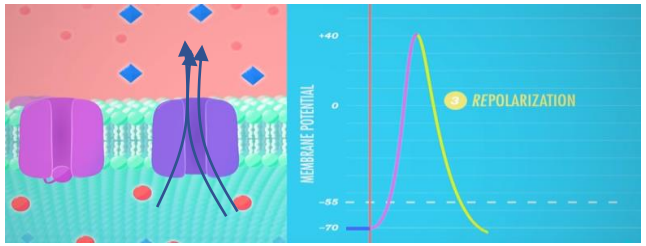
The action potential kicks off a chain reaction down the axon to the terminal buttons. Each neuron has many Na+ voltage gate channels and when a few in one are open the local current is strong enough to change the voltage around them. And that triggers their neighbors to open their ion channels

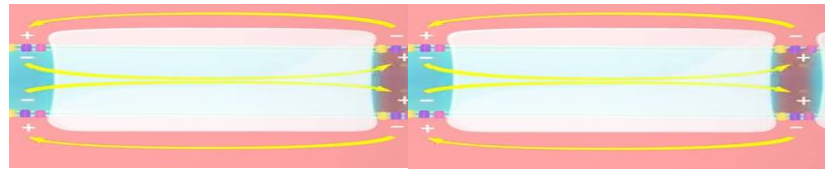


4. As the chain reaction is underway, the process of repolarization begins in the previous parts of the axon. The Na+ close and the K+ ion channels open up. As the K+ leaves the cell Becomes repolarized and Even hyperpolarized as too Many K+ leave. But soon The ion gates close and the Sodium-Potassium pumps Do their job and return the The cell back to its -70 mV



5. When part of the axon is going through this and its ion channels are open, it cannot respond to any other stimulus, this is called the ***refractory period***. This prevents the signal from going in both directions





This process continues all the way to the Axon Terminals causing neurotransmitters to be released.

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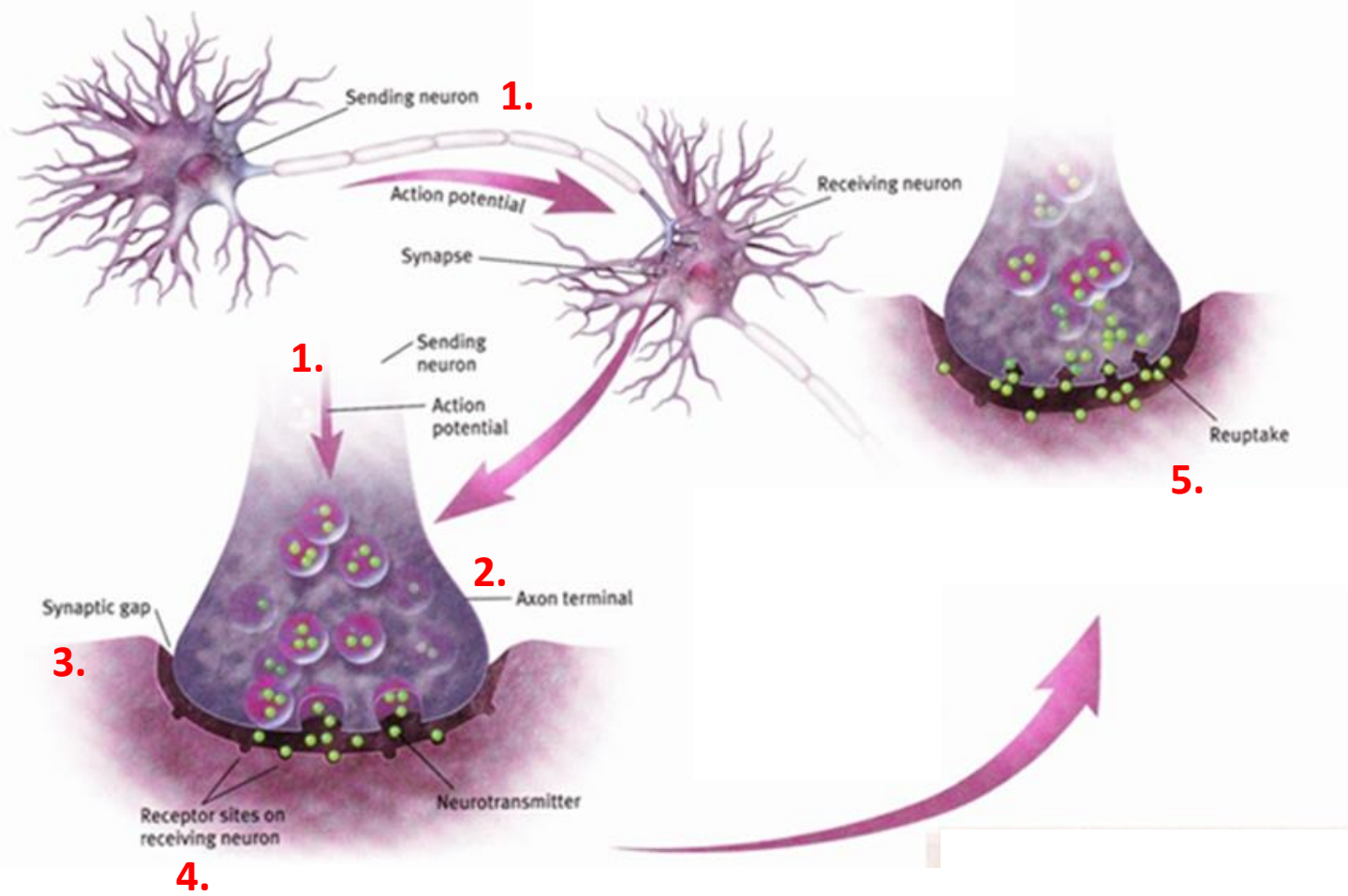
Please watch video: **ACTION POTENTIAL**

Neurotransmitters are chemicals held in the terminal buttons that travel in the synaptic gap between neurons. Neurotransmitters enable neurons to communicate. It is important to understand that different types of neurotransmitters exist. Some neurotransmitters are ***excitatory***, meaning that they excite the next cell into firing. Other neurotransmitters are ***inhibitory***, meaning that they inhibit the next cell from firing. Each synaptic gap at any time may contain many different kinds of inhibitory and excitatory neurotransmitters. The amount and type of neurotransmitters received on the receptor sites of the neuron determine whether it will pass the threshold and fire.



1. The action Potential Arrives at the Axon Terminal of the presynaptic neuron.

2. When the action potential reaches the axon terminal it stimulates the release of neurotransmitters that are packaged in vesicles.

3. The neurotransmitters are released into the ***Synapse***/Synaptic gap/synaptic cleft (the tiny space between the axon of one neuron and the dendrite of another).

4. The released neurotransmitter binds to receptors on the Postsynaptic Membrane (the surface of the cell body/axon that is on the opposite side of the synapse). It receives the neurotransmitter and depolarization of the neuron will take place, thus propagating the signal.

5. In a process called ***reuptake***, the sending neuron normally reabsorbs excess neurotransmitters.

https://qbi.uq.edu.au/brain-basics/brain/brain-physiology/action-potentials-and-synapses

Please Watch: SYNAPSES!

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Types of Neurotransmitters

The human body contains hundreds of substances known (or suspected) to function as neurotransmitters. ***Endorphins*** are the best-known neurotransmitters. These chemicals can reduce pain or produce feelings of pleasure. For example, endorphins can help athletes overcome pain from an injury. They can also produce a boosted mood, which is often called "runner's high."

Neurotransmitters play a role in your eating habits and body weight. When levels of norepinephrine, dopamine, serotonin, leptin, and other neurotransmitters are low, hunger and or eating results. When levels of these substances are high, satiety, or fullness, results. Neurotransmitters may play a role in influencing or causing psychological disorders. The following chart lists the key neurotransmitters that have generated multiple-choice questions on the AP Psychology exam

Test Tip

The AP Psychology exam includes a number of multiple-choice questions that focus on the link between selected neurotransmitters and psychological disorders. Be sure you know that acetylcholine is linked to Alzheimer's disease, that excess dopamine is linked with schizophrenia, and that too little dopamine is linked to Parkinson's disease.

Test Tip

Summary of the Known Major Neurotransmitters

Neurotransmitter	Function	Effect of Deficit	Effect of Surplus
Acetylcholine (ACh)	Excitatory: It produces muscle contractions and is found in the motor neurons; in the hippocampus, it is involved in memory formation, learning and general intellectual function.	Paralysis; A factor associated with Alzheimer's disease: levels of acetylcholine are severely reduced associated with memory impairment.	Violent muscle contractions
Dopamine	Excitatory: involved in voluntary muscle movements, attention, learning, memory, and emotional arousal and rewarding sensations	Muscle rigidity; A factor associated with Parkinson's disease: degeneration of neurons in the substantia nigra that produce dopamine.	One factor associated with schizophrenia-like symptoms such as hallucinations and perceptual disorders, addiction
Serotonin	Inhibitory or excitatory: involved in mood, sexual behavior, pain perception, sleep, eating behavior, maintaining a normal body temperature and hormonal state	Anxiety, mood disorders, insomnia; One factor associated with obsessive-compulsive disorder and depression	Autism
Endorphins	Inhibitory: regulates pain perception and involved in sexuality, pregnancy, labor, and positive emotions associated with aerobic exercise—the brains natural opiates.	Body experiences pain	Body may not give adequate warning about pain
Norepinephrine	Excitatory and inhibitory: involved in increasing heartbeat, arousal, learning, memory, and eating	One factor associated with depression.	Anxiety
GABA (gamma aminobutyric acid)	Inhibitory: communicates messages to other neurons, helping to balance and offset excitatory messages. It is also involved in allergies	Destruction of GABA-producing neurons in Huntington's disease produces tremors and loss of motor control, as well as personality changes.	Sleep and eating disorders

I can discuss the influence of drugs on neurotransmitters (e.g., reuptake mechanisms, agonists, antagonists).

Psychoactive drugs have inhibitory or excitatory effects on the nervous system. Agonists are chemicals that bind to receptors and mimic the effects of neurotransmitters. Antagonists are chemicals that bind to receptors and block the functioning of neurotransmitters.

Agonists are chemicals that bind to receptors and mimic the effects of neurotransmitters. They results in excitatory effects of the neurotransmitter.

Drug	Neurotransmitter impacted	Effect
Prozac Selective Serotonin Reuptake Inhibitors (SSRI):	Serotonin	Prevents the reuptake of serotonin, thereby increasing the brain's supply of serotonin. Prozac treats depression, but can alter sleep, eating patterns, and other thought processes.
Some Opiate drugs (pain pills)	Endorphins	Produce a temporary "high" by amplifying normal sensations of arousal or pleasure. Very addictive, terrible withdraw symptoms, a single large dose can cause severe respiratory depression and death
Caffeine	ACh	Increase alertness and heart rate.
Adderall methamphetamine cocaine, and speed	Norepinephrine	They create feelings of euphoria and extreme alertness, increase anxiety
Benzodiazepines and alcohol	GABA	Increase inhibiting effects of GABA Inhibit neural signaling

Antagonists are chemicals that bind to receptors and block the functioning of neurotransmitters. The have an inhibitory effect.

Drug	Neurotransmitter impacted	Effect
Botulin	Acetylcholine (ACh).	A poison that can form in improperly canned food, causes paralysis. Small injections of botulin—Botox—smooth wrinkles by paralyzing the underlying facial muscles
LSD Lysergic acid diethylamide	Serotonin	Delusions, Visual hallucinations An artificial sense of euphoria or certainty Flashbacks, or a recurrence of the LSD trip, often without warning long after taking LSD, Severe depression or psychosis
PCP	Glutamate	Causes a dissociative state that inhibits memory and learning.
Abilify (aripiprazole) Seroquel (quetiapine) Risperdal	Dopamine	Treat psychosis, schizophrenia, and bipolar disorder.

Test Tip

Alcohol is the substance most frequently asked about on the AP Psychology exam.

Test Tip

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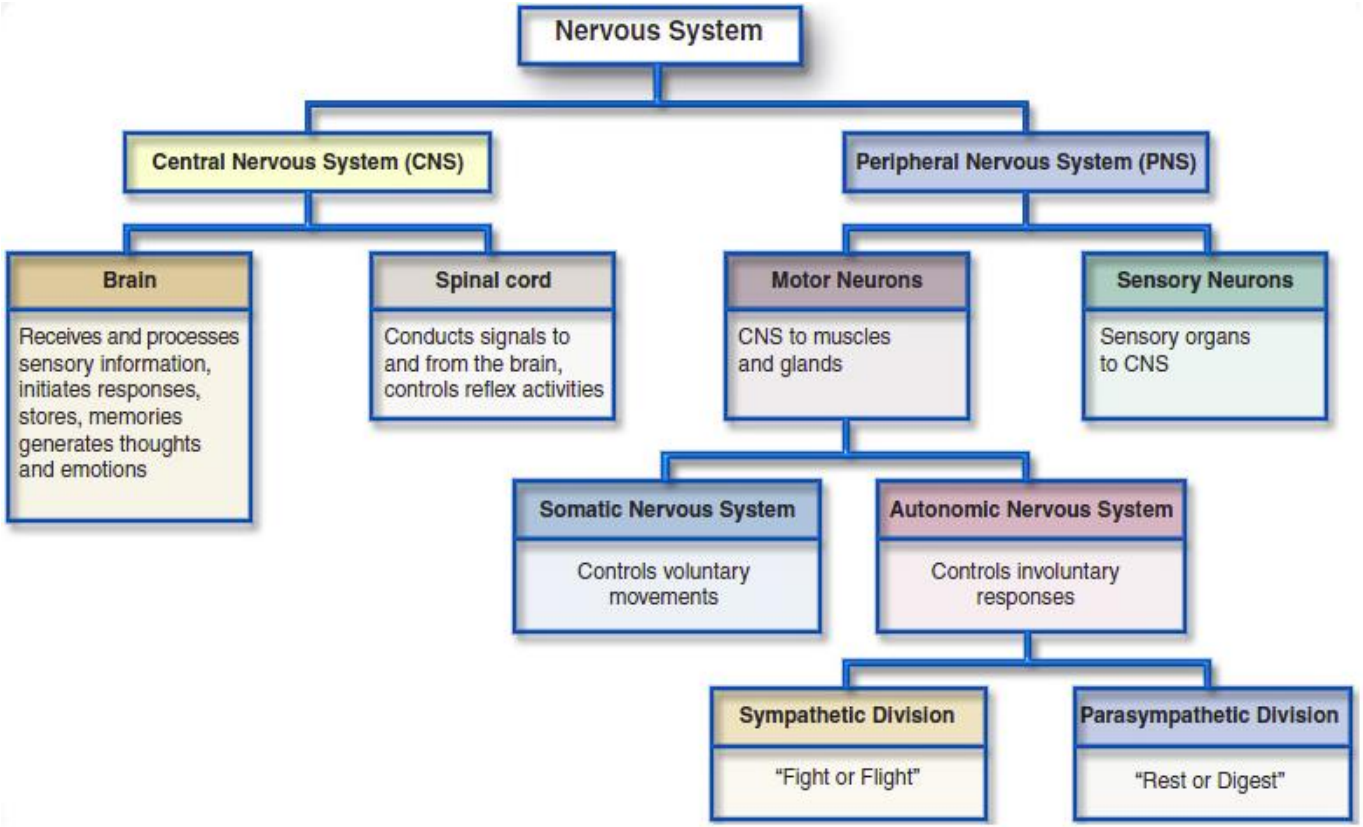
I can describe the nervous system and the subdivisions and functions of the central and peripheral nervous systems

Our nervous system is divided into different categories based on function. The two main divisions are the central nervous system and the peripheral nervous system. These are then subdivided further.

The Brain and the Spinal Cord form the **Central Nervous System(CNS),** the body's main decision-maker. The **Peripheral Nervous System (PNS)** is responsible for gathering information and for transmitting CNS decisions to other body parts. Nerves, electrical cables formed of bundles of axons, link the CNS to the body's sensory receptors, muscles, and glands.

Information travels in the nervous system through three types of neurons. **Sensory neurons (afferent neurons**) are neurons that carry incoming information from the sensory receptors in the body to the brain and spinal cord for processing. **Interneurons** act as a middleman between neurons, allowing efferent neurons, afferent neurons, and other interneurons to communicate with one another. While **motor neurons (efferent neurons**) are neurons that carry outgoing information from the brain and spinal cord to the muscles and glands.



Memory tip:
Afferent neurons– messages **A**rrive in the nervous system/brain. **E**fferent neurons – messages **E**xit the nervous system/brain

Mirror neurons are neurons that fire both when someone acts and when someone observes the same action performed by another. Thus, the neuron "mirrors" the behavior of the other, as though the observer were acting. Such neurons have been directly observed in primate species. May help explain why people experience feelings of empathy.

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Please watch: THE NERVOUS SYSTEM

THE CENTRAL NERVOUS SYSTEM (CNS) - The **central nervous system (CNS**) consists of our brain and spinal cord—all the nerves housed within the bone (the skull and vertebrae). More than 99% of all nerve cells in the body are located in the CNS. Information about the structure and function of different parts of the brain is available in a later section. The spinal cord is a bundle of nerves that run through the center of the spine. The CNS is considered the command center of the body because it transmits information from the rest of the body to the brain

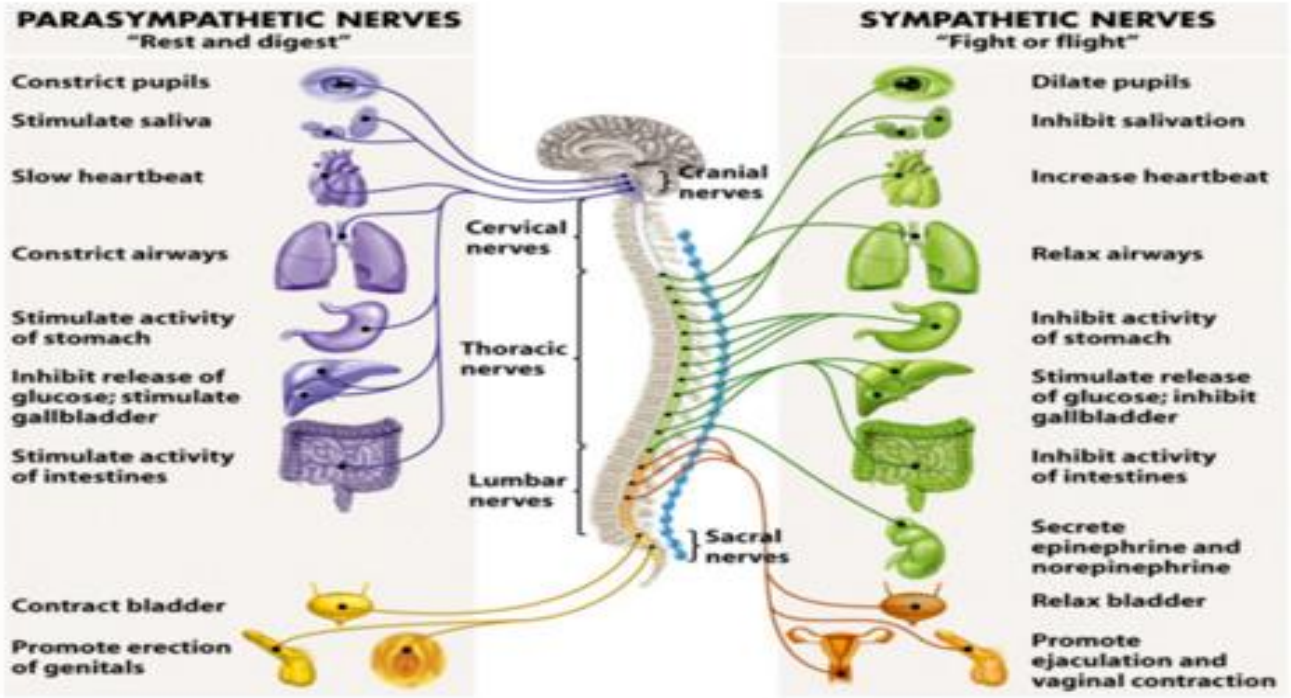
The brain is required for voluntary movements. The spinal cord deals with reflexes or involuntary actions. Spinal cord injuries can produce paralysis of limbs. The higher the site of the damage to the spinal cord, the more severe the injury.

The ***peripheral nervous system*** (PNS) consists of all the other nerves in your body—all the nerves not encased in bone. The peripheral nervous system is divided into two categories: the somatic and the autonomic nervous systems.

The ***somatic nervous system*** controls our voluntary muscle movements. The motor cortex of the brain sends impulses to the somatic nervous system, which controls the muscles that allow us to move.

The ***autonomic nervous system*** controls the automatic functions of our body—our heart, lungs, internal organs, glands, and so on. These nerves control our responses to stress—the fight or flight response that prepares our body to respond to a perceived threat. The autonomic nervous system is divided into two categories: the sympathetic and parasympathetic nervous systems.

Parasympathetic nervous system is responsible for slowing down our body after a stress response. It carries messages to the stress response system that causes our body to slow down. Think of the parasympathetic nervous system as the brake pedal that slows down the body's autonomic nervous system.



Sympathetic nervous system mobilizes our body to respond to stress. This part of our nervous systems carries messages to the control systems of the organs, glands, and muscles that direct our body's response to stress. This is the alert system of our body. It accelerates some functions (such as heart rate, blood pressure, and respiration) but conserves resources needed for a quick response by slowing down other functions (such as digestion).

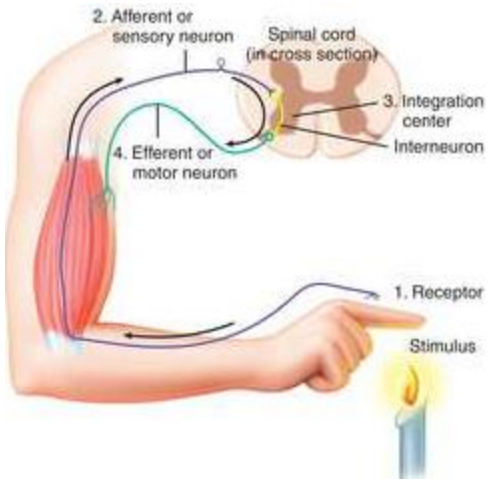
Normal Peripheral Nervous System Transmission

When you stub your toe pain **(1)** **Sensory neurons** in your toe are activated, **(2)** this message is transmitted up a neuron that runs from your toe to the base of your spine (afferent nerves).

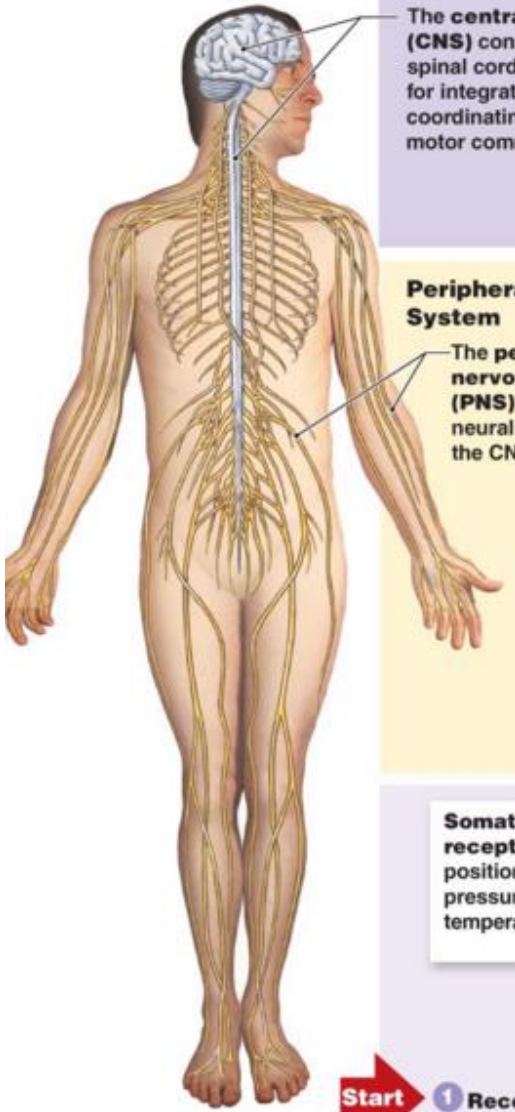
The message continues up your spinal cord on more afferent nerves until it enters your brain through the brain stem **(3)** and is transmitted to the brain's sensory cortex and you know you have stubbed your toe. **(4)** Your motor cortex now sends impulses down the spinal cord to the muscles controlling your leg and foot (efferent nerves), causing you to hop up and down holding your damaged limb, muttering under your breath.

Reflexes- Leaving the brain out of it

Reflex arc – A reflex occurs without any input from the brain, the spinal cord neurons are capable of creating simple reflexive behaviors. While the spinal reflex occurs, sensory neurons also send messages to the brain, letting it know what has happened.



The major components and functions of the nervous system



Central Nervous System

The **central nervous system (CNS)** consists of the brain and spinal cord and is responsible for integrating, processing, and coordinating sensory data and motor commands.

3 **Information processing** includes the integration and distribution of information in the CNS.

Peripheral Nervous System

The **peripheral nervous system (PNS)** includes all the neural tissue outside the CNS.

4 The **motor division** of the PNS carries motor commands from the CNS to peripheral tissues and systems.

includes

The **somatic nervous system (SNS)** controls skeletal muscle contractions.

The **autonomic nervous system (ANS)** provides automatic regulation of smooth muscle, cardiac muscle, glands, and adipose tissue.

2 The **sensory division** of the PNS brings information to the CNS from receptors in peripheral tissues and organs.

Somatic sensory receptors provide position, touch, pressure, pain, and temperature sensations.

Special sensory receptors provide sensations of smell, taste, vision, balance, and hearing.

Visceral sensory receptors monitor internal organs.

Skeletal muscle

- Smooth muscle
- Cardiac muscle
- Glands
- Adipose tissue

Start

1 **Receptors** are sensory structures that detect changes in the internal or external environment.

5 **Effectors** are target organs whose activities change in response to neural commands.

Test Tip

The nervous system and the endocrine system typically generate one or two multiple-choice questions on each exam. Be sure you understand the difference between the sympathetic and parasympathetic nervous systems. In addition, be sure you understand the functions of the pituitary gland and the adrenal glands.

Test Tip

I can discuss the effect of the endocrine system on behavior.

The ***Endocrine system*** is a system of hormones that carry messages through different glands. ***Hormones*** are chemical messengers that are produced by the endocrine glands and carried by the bloodstream to all parts of the body. When hormones act on the brain, they influence our interest in sex, food, and aggression. Some hormones are chemically identical to neurotransmitters. Both produce molecules that act on receptors elsewhere. Hormones move much more slowly through the body than neurotransmitters. Endocrine messages tend to last longer than neural messages which is why it takes a while for their effects to wear off. The endocrine system is complex, but a few elements of the entire process are especially relevant to psychologists.

The endocrine system is controlled in the brain by the hypothalamus. The ***Hypothalamus*** (located in the lower half of the brain) links the nervous and endocrine systems by receiving signals and propagating the endocrine response, it also allows humans to sense a need such as thirst or hunger.

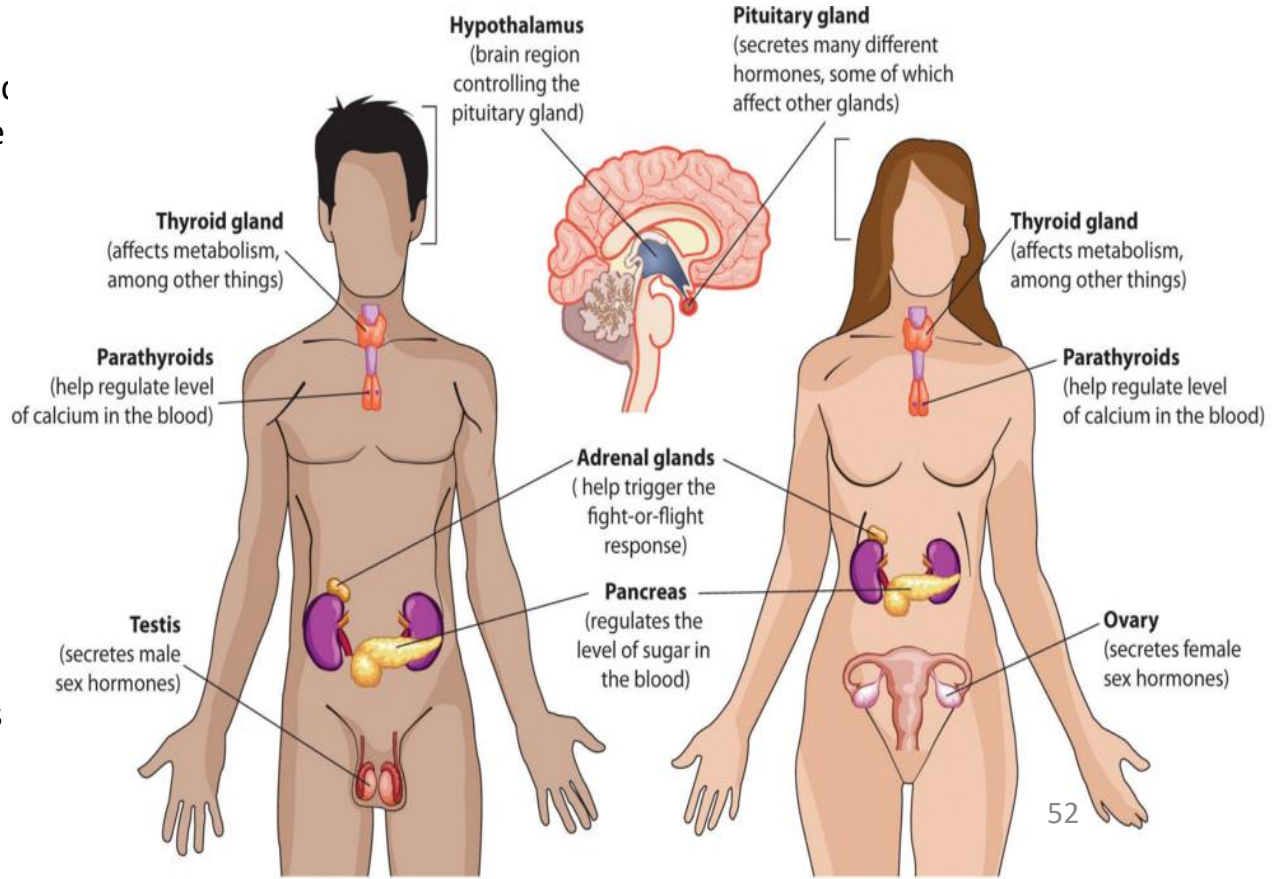
The **Pituitary gland** is a pea-sized gland known as the "master gland" because it regulates the activity of several other glands. The pituitary gland is under the control of the hypothalamus.

The thyroid gland is located at the base of the neck. The sole function of the thyroid is to make thyroid hormones. This hormone has an effect on nearly all tissues of the Body where it increases cellular activity. The function of the thyroid, therefore, is to Regulate the body's metabolism.

Adrenal glands are located on top of the kidneys. In an emergency, the adrenal Glands secrete hormones that cause an increase in heart rate, blood pressure, And sugar levels, while simultaneously reducing blood flow to the digestive system.

The ***Pancreas*** serves as a dual-purpose gland that performs both digestive and endocrine functions. Located under the stomach it produces insulin, an essential hormone that controls glucose (blood sugar) levels in the body and is related to metabolism, body weight, and obesity.

The Gonads—***testes*** (males) and ***ovaries*** (female) are sex-related endocrine glands that produce hormones involved in sexual development and reproduction.

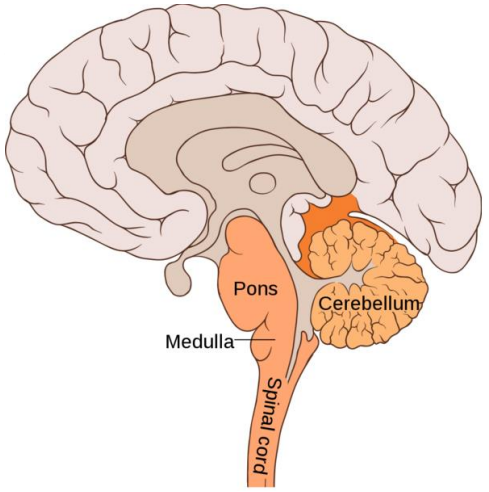


Please Watch: [THE CHEMICAL BRAIN]

I can describe the major brain regions, lobes, and cortical areas; brain lateralization and hemispheric specialization.

The brain is the most complicated organ in the body and perhaps the most complicated structure in the universe. Researchers categorize hundreds of different parts and functions of different parts of the brain. Because of this complexity, we need to divide the brain into separate categories in order to keep track of the information. When you study and think about the brain, think about three separate major categories or sections: the hindbrain, midbrain, and forebrain.
Some evolutionary psychologists organize these categories into two major divisions: the "old brain" (hindbrain and midbrain) and the "new brain" (forebrain).

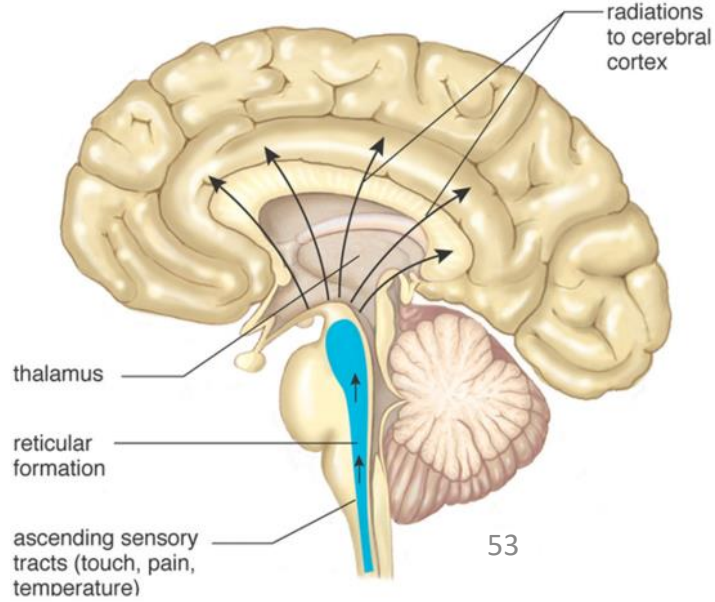
Hindbrain *(Brainstem)* The hindbrain consists of structures in the top part of the spinal cord. *The hindbrain is our life support system*; it controls the basic biological functions that keep us alive. Some of the important specific structures within the hindbra medulla, pons, and cerebellum



The ***medulla*** is involved in the control of our blood pressure, heart rate, and breathing. It is also known as the medulla oblongata and is located above the spinal cord. As some brain-damaged patients in a vegetative state illustrate, we need no higher brain or conscious mind to keep our heart beating and our lungs breathing.

The ***pons*** (located just above the medulla and toward the front) connects the hindbrain with the midbrain and forebrain. Pons is Latin for "bridge." The pons contains axons that cross from one side of the brain to the other. The pons is responsible for sleeping, walking, and dreaming. It is also involved in the control of facial expressions.

The ***cerebellum*** (located on the bottom rear of the brain) looks like a smaller version of our brain stuck onto the underside of our brain. *Cerebellum* means little brain. The cerebellum is responsible for coordinating fine muscle movement and maintaining posture and balance. It enables nonverbal learning an memory. It also helps us judge time and modulate our emotions.

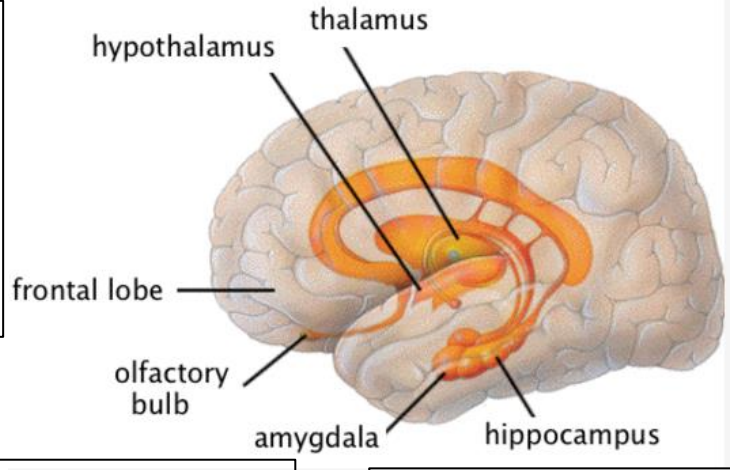


Midbrain The midbrain is a small area in the brain located just above the spinal cord and below the forebrain. *The midbrain integrates auditory and visual sensory information and muscle movements*. The ***reticular formation*** is a network of nerve fibers that run through the center of the midbrain. The reticular formation helps regulate attention, arousal, and sleep. Without the reticular formation, you would not be alert or even conscious.

The Forebrain: Areas of the forebrain control what we think of as thought and reason. In humans, the forebrain is much larger in comparison with the other areas. The size of our forebrain makes humans human, and most psychological researchers concentrate their efforts in this area of the brain. The parts of the forebrain can be grouped into two distinct areas; the limbic systems and the cerebral cortex.

The Limbic System: The ***limbic system*** is a complex set of structures found on the central underside of the cerebrum, comprising inner sections of the temporal lobes and the bottom of the frontal lobe. It combines higher mental functions and primitive emotion into a single system often referred to as the emotional nervous system. It is not only responsible for our emotional lives but also our higher mental functions, such as learning and the formation of memories. The limbic system is the reason that some physical things such as eating seem so pleasurable to us, and the reason why some medical conditions, such as high blood pressure, are caused by mental stress. There are several important structures within the limbic system: the amygdala, hippocampus, thalamus, hypothalamus, basal ganglia, and cingulate gyrus.

The ***hypothalamus*** is often called the brain's "master control center" because it controls several metabolic functions, including body temperature, sexual arousal (libido), hunger, thirst, and the endocrine system.

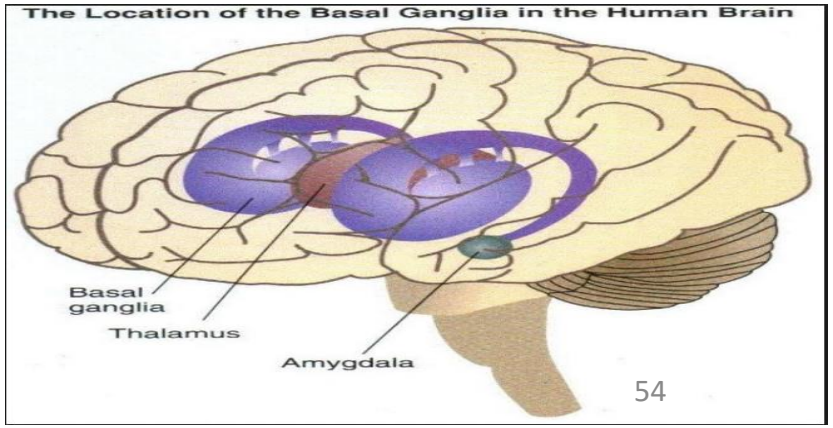


The ***thalamus*** is located at the top of the brainstem. "The information hub." The thalamus receives input from all of the senses, except smell, and directs this information to the appropriate cortical areas. Injury to the thalamus can cause blindness and deafness.

The ***Basal Ganglia*** works with the cerebellum and cerebral cortex to control voluntary movements. Responsible for executing a skill pattern (something you've had to learn) that you can do with very little thought; automatic movements

The ***amygdala*** is involved in emotional awareness. It recognizes potential threats. Coordinates fight-or-flight response. The amygdala is also responsible for learning on the basis of reward or punishment. The amygdala consolidates memories, particularly emotionally-laden memories. Emotional arousal following a learning event influences the strength of the subsequent memory of that event.

The ***hippocampus*** is involved in learning and the storage of long-term memories. Memories are not permanently stored in this area of the brain, however. Memories are processed through this area and then sent to other locations in the cerebral cortex for permanent storage.



Cerebral Cortex- The word "cortex" means "bark." Like the bark of a tree, the cerebral cortex is the thin (about one-quarter of an inch) outer covering of the forebrain. Gray and wrinkled, the cerebral cortex is composed of approximately 30 billion densely-packed neurons and nine times as many supporting glial cells (Glial Cells – nourish, protect, and support neurons). When we are born, our cerebral cortex is full of neurons (more than we have now, actually) but the neurons are not yet well connected. As we develop and learn, the dendrites of the neurons in the cerebral cortex grow and connect with other neurons The wrinkles (also known as convolutions) significantly increase the brain's available surface area. If the cerebral cortex were not wrinkled, our skull would have to be 3 square feet to hold all those neural connections!

Any area of the cerebral cortex that is not associated with receiving sensory information or controlling muscle movements is labeled as an ***association area.*** Although specific functions are not known for each association area, these areas are very active in various human thoughts and behaviors. For example, association areas are thought to be responsible for complex, sophisticated thoughts like judgment and humor.

When you study the cerebral cortex, think of it as a collection of different areas and specific cortices. Think of the cerebral cortex as eight different lobes, four on each hemisphere: ***frontal, parietal, temporal, and occipital***. Some of the major functions of these parts of the brain that are important for you to know.

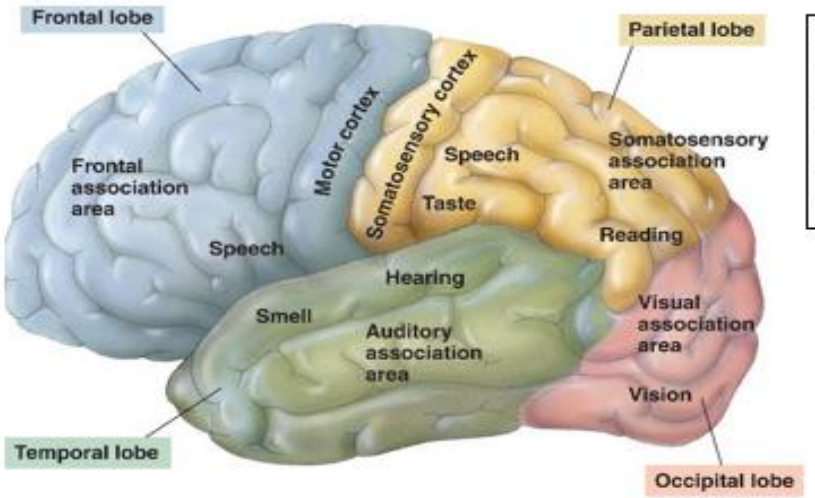
Motor cortex: controls voluntary movements. Located at the rear of the frontal lobe. Body areas that require precise control, such as the fingers and mouth, occupy the greatest amount of cortical space.

Somatosensory cortex: detects and interprets information on touch, temperature, pain, and pressure and allows us to perceive the size, shape, and texture of an object via touch. Structured like the motor cortex: body areas that require precise control, such as the fingers and mouth, occupy the greatest amount of cortical space. Somatosensory cortex interprets the information; motor cortex tells the body to physically move

Frontal Lobes: Located in front of the motor cortex and directly behind the forehead.

Involved in personality, intelligence, and the voluntary control of muscles.

Prefrontal cortex: involved in higher cognitive functions such as planning, reasoning, and self-control.



Parietal Lobes: processes sensory information that has to do with taste, temperature, and touch. Also involved in registering spatial location (relating to physical space), attention, and motor control.

Occipital lobes: process and respond to visual stimuli. Process information about aspects of visual stimuli such as color, shape, and motion. Eyes only perceive incoming information; the occipital lobes process and interpret it.

Temporal lobes: involved in hearing, language processing, and memory. People with temporal lobe damage have problems filing experiences into long-term memory. Damage can also impair a person's ability to recognize faces.

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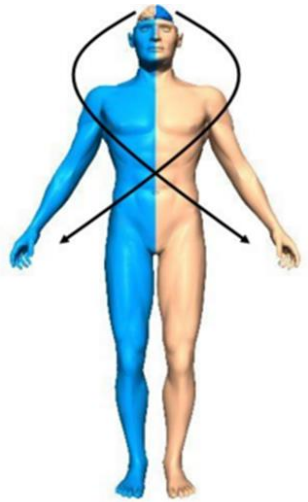
BRAIN LATERALIZATION AND HEMISPHERIC SPECIALIZATION

The cerebral cortex is divided into left and right hemispheres. Each hemisphere controls the opposite side of the body. Thus, the left hemisphere controls the right side of the body, while the right hemisphere controls the left side of the body this is called ***contralateral control***.



Lateralization: the separation of the brain into two hemispheres—left and right—that serve different functions. Our brain DOES have specialization but the whole "You are a right-brain, left-brain thing" has been oversimplified in pop culture.

Left hemisphere: specializes in the language (except in some left-handed people where language is mainly processed on the the right side of the brain.)

Much of what we know about hemispheric specialization comes from the research and experiments conducted by ***Roger Sperry***.

Broca's area (named after Paul Broca) is located in the frontal lobe near the motor cortex and is responsible for the areas of the face used for speaking, damage to this area may greatly impact a person's ability to speak.

Wernicke's area (named for Carl Wernicke) is located in the temporal lobe and is responsible for understanding speech. Damage to this area may make it difficult for people to understand speech and their speech is often meaningless.

Aphasia: impairment of language, usually caused by left hemisphere damage either to Broca's area (impairing speaking) or to Wernicke's area (impairing understanding)

The Right hemisphere specializes in processing nonverbal information such as spatial perception, visual recognition, and emotion. The right hemisphere plays a role in processing the meaning of language.

The Corpus callosum is the large band of neural fibers connecting the two brain hemispheres and carrying messages between them. Data received by either hemisphere are quickly transmitted to the other across the corpus callosum. In extreme cases, surgically severing the corpus callous, is a treatment for epilepsy.

Left Hemisphere	Right Hemisphere
Positive emotions	Negative emotions
Controls muscles for speech	Response to commands
Controls movements	Memory for shapes
Spontaneity	Memory for music
Memory for words and numbers	Understanding spatial relationships
Understanding speech and writing	Understanding images

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Part	Mnemonic Device
Lobes	The cerebral cortex is located at the Front and TOP of the brain's **Front**al **T**emporal **O**ccipital **P**arietal
Occipital lobe	eyes in the back of the head, O for optics
Temporal lobe	Near the temples of the head, we hear the tempo
Parietal lobe	deals with feel and pain, if a piranha bit you the parietal lobe would help you know
Frontal lobe	When in Front of the class- you need to have a thoughtful and planned out presentation.
Motor Cortex	Deals with movement- cars have motors we have the motor cortex
Somatosensory Cortex	Deals with the senses
Broca's area	Part of the brain is responsible for producing speech. If damaged, the ability to produce language is broken, "My speech is Broca's" Broca's deals with the motor cortex- the creation of speech need to move the mouth Boca – Spanish for mouth
Wernicke's area	Wernicke's area is responsible for the comprehension of speech. It is in the parietal and temporal lobe and we need to sense what words mean. If damaged we will find ourselves asking, "**w**hat, **w**hat , **w**hat, **w**hat, **w**hat, **w**hat, **w**hat, **w**hat?" W for what and W for Wernickes'
Corpus Callosum	communication between both halves of the brain. They "**call**" each other. The entire brain is the "**sum"** of its two halves.
Reticular Formation	R.A.S. Reticular Activating System or "Rise and Shine"
Thalamus	Thal must deliver the message
Hypothalamus	The four f's – fight, flight, feed, mating Hypothalamus Homoeostasis
Hippocampus	Elephants don't forget and neither do hippos if you saw a hippo on campus you wouldn't forget it
Amygdala	Russian fighter jet is A Mig. I you saw a Russian fight jet you would want to fight it or fly away
Cerebellum	The bell of the ball- needs balance to dance and practice to make the steps automatic
Medulla	Think about a medal that is hanging over your heart and lungs
Pons	Sleeping by a peaceful **pon**d

Test Tip

AP Psychology test writers know that you are not studying to be a brain surgeon. Relax, you will not be asked to label a diagram of the brain or write a free-response essay listing all of the lobes or parts of the forebrain. However, you are expected to know the functions of the hypothalamus, the hippocampus, the amygdala, the corpus callosum, and the occipital and temporal lobes. Taken together, these six parts of the brain have generated almost half of the multiple-choice questions asked about the brain.

Test Tip

Please watch video: MEET YOUR MASTER: GETTING TO KNOW YOUR BRAIN

I can recount historic and contemporary research strategies and technologies that support research (e.g., case studies, split-brain research, imaging techniques).

Although there is still a lot of mystery surrounding the brain, researchers have come a long way in understanding the brain's anatomy and functions. Studying how the brain works is challenging because we cannot simply observe brain function the way we might observe other parts of the body. Researchers are discovering many new details about how the brain works through experimentation and the use of technology. But we still have a long way to go before we really understand how the brain controls our thoughts and behavior. The chart below outlines methods used by researchers to learn about the brain.

Method	Description	What is learned
Accidents	When a brain injury does occurs researchers will often note the location of damage and the impacts on brain and body function.	Accidents give researchers clues about brain function A famous example was the Phineas Gage accident and its impacts on his personality.
Lesion	The removal or destruction of part of the brain. i.e. Surgery or the controversial practice of frontal lobotomy (not practiced anymore)	After lesioning, researchers can examine behavior changes and try to infer the function of that part of the brain. Frontal lobotomy was used on patients with mental illness. Researchers would lesion the Frontal lobe to calm their patients.
Electroencephalogram (EEG)	Electrical activity throughout the brain sweeps in regular waves across its surface. The EEG records the patterns of these waves.	The EEG reveals areas of the brain that are most active during a particular task or changes in mental states. The EEG can trace abnormal brain waves caused by brain malfunctions such as epilepsy.
Computed Tomography (CT)	Uses X-rays to create a static picture of the brain. Widely used in research because it is the least expensive type of imaging.	CT scans reveal the effects of strokes, tumors, and other brain disorders.
Positron Emission Tomography (PET)	Researchers inject a harmless, radioactive form of glucose into a person's bloodstream.	The PET scan produces computer-generated, color-coded images of the brain that provide information about glucose metabolism. Originally designed to detect abnormalities, PET scans are now also used to identify brain areas active during ordinary activities.
Magnetic Resonance imaging (MRI)	Uses a high-frequency magnetic field to produce detailed, high-resolution pictures of the brain.	MRI images are used to map brain structures and identify abnormalities.
Functional Magnetic Resonance imaging (fMRI)	Functional MRI (fMRI) is a new technology that combines elements of the MRI and PET scans.	An fMRI scan can show details of brain structure with information about blood flow in the brain, tying brain structure to brain activity during cognitive tasks.

Accidents/damage to Parts of the Brain	
Part of the Brain damaged	**Common Result**
Frontal lobe	Lack of focus, changes in personality/mood, difficulty with problem solving
Parietal lobe	problems with reading/writing/math, difficulty with right and left
Occipital lobe	Defects in vision and blind spots, visual illusions/hallucinations
Temporal lobe	Auditory hallucinations, poor face recognition, memory issues
Motor Cortex	Loss of movement
Somatosensory Cortex	Poor hand-eye coordination, lack of awareness/neglect for body parts
Broca's area	Difficulty in speaking and forming words
Wernicke's area	Difficulty in speaking and understanding words
Hippocampus	Loss of memory
Amygdala	Loss of fear, lack of emotional responses
Hypothalamus	Imbalance of systems, dietary issues, impact on sex drive
Reticular Formation	Alertness and possible coma
Cerebellum	Poor coordination, difficulty walking, poor balance, slurred speech
Medulla	Changes in breathing and heart rate
Pons	Changes in breathing, consciousness, balance

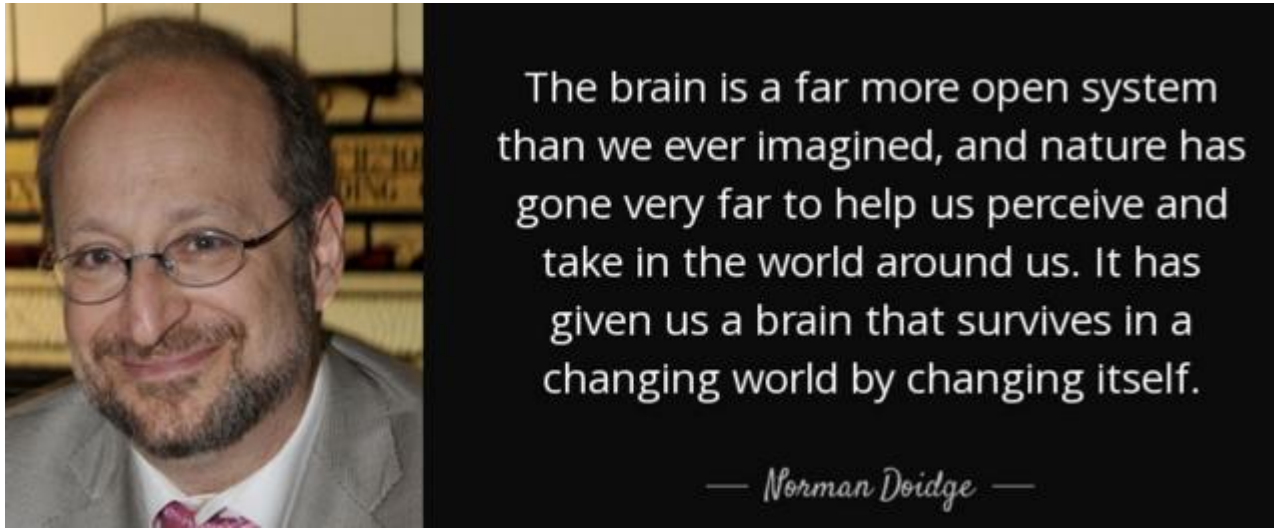
I can discuss the role of neuroplasticity in traumatic brain injury.

Neuroplasticity is the brain's ability to rewire itself, especially during childhood, by reorganizing after damage or by building new pathways based on experience. The brain does NOT quickly regrow neurons, it reconnects existing neurons in new ways.

The cerebral cortex is made up of neurons connected by dendrites that grow to make new connections, especially during childhood. Neurons in mammals have been found to change the way they function as a result of repeated stimulation by growing new dendritic spines.

Damaged brain functions can sometimes migrate to other brain regions.

Neurogenesis is the process of the birth of neurons wherein neurons are generated from neural stem cells. Contrary to popular belief, **neurogenesis** continuously occurs in specific regions in the adult brain.



" 'Neuro' stands for neurons, the nerve cells in the brain that generate electrical activity, and 'plasticity' means changeable, adaptable, and modifiable. It's that property of the brain that allows it to change its structure and function in response to activity and mental experience. And it's a revolutionary discovery because for many decades it was believed that the circuitry of the brain was formed and finalized in early childhood.“-

Norman Doidge psychiatrist and author of "The Brain's Way of Healing: Remarkable Discoveries and Recoveries From the Frontiers of Neuroplasticity."

Please watch: GIRL LIVING WITH HALF HER BRAIN

Please watch: Blind Man Can See With New Technology: Plastic Fantastic Brain

Please watch:
The Brain: How it can change, develop and improve with neuroplasticity

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I can recount historic and contemporary split-brain research.

Split brains: a condition resulting from surgery that isolates the brain's two hemispheres by cutting the fibers (mainly those of the corpus callosum) connecting them. The procedure can help reduce seizures (epilepsy). People with split brains are surprisingly normal; their personalities and intellect are hardly affected.

Michael Gazzaniga conducted an experiment on split-brain patients that went as follows:

He had split-brain patients stare at a dot while he flashed HE-ART on a screen. HE appeared in their left visual field and ART appeared in their right visual field

When he asked them to say what they had seen, they reported they had seen ART.

When he asked them to point to the word they had seen, their left hand pointed to HE.

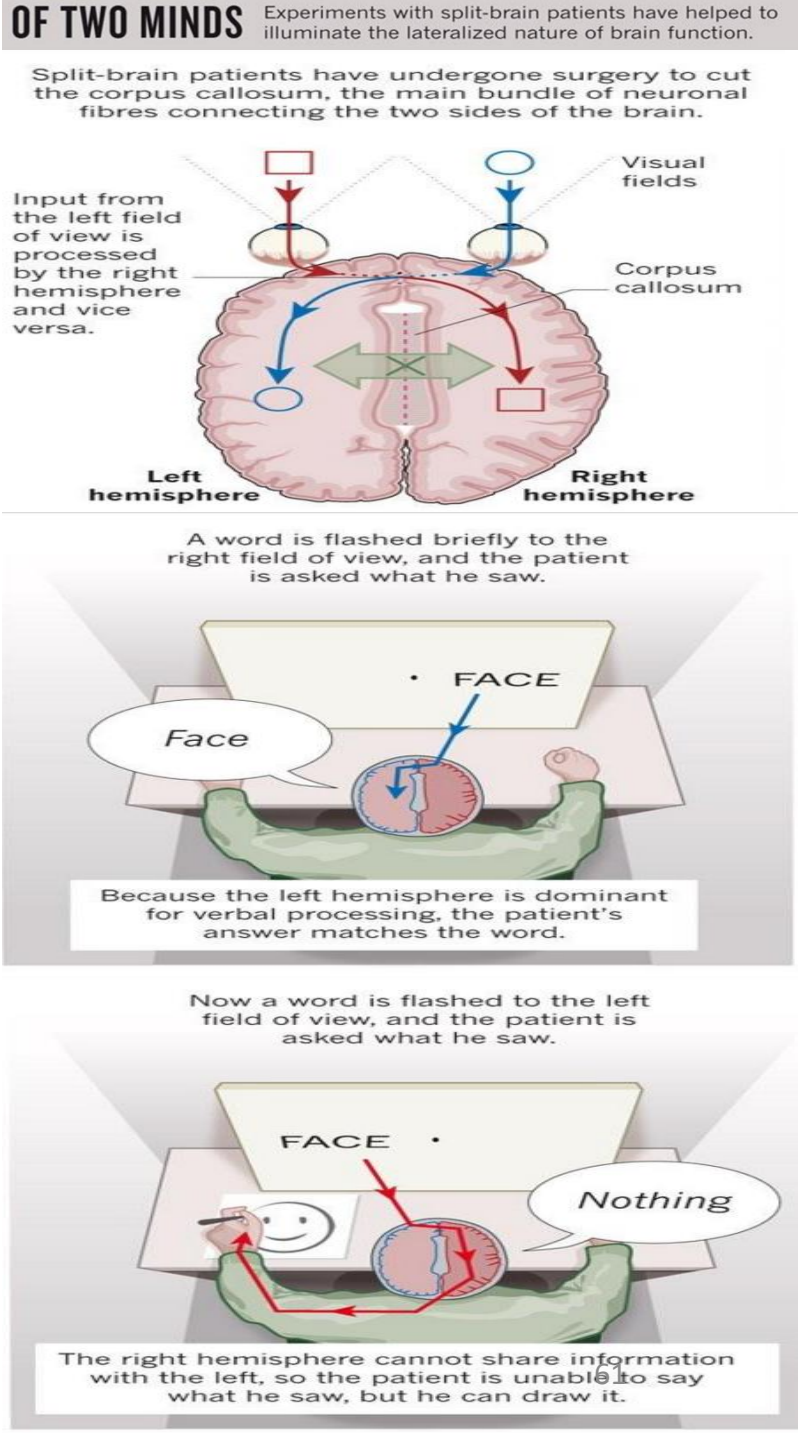
The right hemisphere (controlling the left hand) intuitively knew what it could not verbally report.

When a picture of a spoon was flashed to their right hemisphere (the "mute" side), the patients could not say what they had viewed.

When asked to identify what they had viewed by feeling an assortment of hidden objects with their left hand, they easily selected the spoon. If the experimenter said "Correct!" the patient might reply, "What? Correct? How could I possibly pick out the correct object when I don't know what I saw?"

It is the left hemisphere doing the talking here, bewildered by what the nonverbal right hemisphere intuitively knows. As a result of the experiment, it has been determined the data received by the right hemisphere cannot be transported to the left and vice versa.

Please Read: [Study #1]



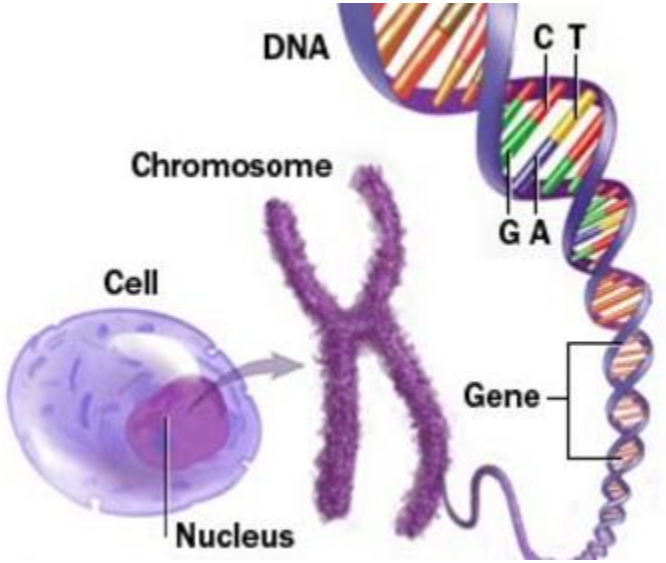
I can discuss psychology's abiding interest in how heredity, environment, and evolution work together to shape behavior.

Are human thoughts and behaviors caused primarily by nature (genetics/biology) or nurture (environmental/social-cultural influences)? The answer is both. Researchers who study ***behavior genetics*** study the relative power and limits of genetic and environmental influences on behavior. To a psychologist, the ***environment*** refers to every external influence such as prenatal nutrition, other people, and the other things around us. Besides the functioning of the brain and nervous system, another biological factor that affects human thought and behavior is genetics. Most human traits, like body shape, introversion, or temper, result from the combined effects of nature (our genetic code) and nurture (the environment where we grow up and live). Psychological researchers attempt to determine how much nature and nurture contribute to human traits.

Basic Genetic Concepts

Every human cell contains 46 ***chromosomes*** in 23 pairs. The genetic material that makes up chromosomes is ***DNA—deoxyribonucleic acid***. Certain segments of DNA control the production of specific proteins that control some human traits. These discrete segments are called ***genes.***

Genes can be ***dominant or recessive***. If we inherit two recessive genes for a particular trait, that trait will be expressed. In any other combination of genes, the dominant trait is expressed. Psychological researchers investigate how different combinations of genes create tendencies for physical and behavioral traits. Human thought and behavior are best understood as biopsychosocial: we are influenced by our biology, evolutionary processes, psychological experiences, and our social-cultural circumstances.



Our sex is determined by our twenty-third pair of chromosomes. Males have an X and Y chromosome, and Females have two X chromosomes. Usually, a male will contribute either an X chromosome to a child (resulting in a girl) or a Y (resulting in a boy).

Phenotype (phenotypic): the set of observable characteristics of an individual
Example: blue eyes, brown hair, attached earlobes

Genome: the complete instructions for making an organism, consisting of all the genetic material in that organism's chromosomes.

Heritability: the extent to which variation among individuals can be attributed to their differing genes.

Please Watch:
EPIGENETICS: NATURE VS NURTURE

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Occasionally, chromosomes will combine (or fail to) in an unusual way, resulting in a chromosomal abnormality. For example, babies with Turner's syndrome are born with only a single X chromosome in the spot usually occupied by the twenty-third pair. Turner's syndrome causes some physical characteristics, like shortness, webbed necks, and differences in physical sexual development. Babies born with Klinefelter's syndrome have an extra X chromosome, resulting in an XXY pattern. The effects of this syndrome vary widely, but it usually causes minimal sexual development and personality traits like extreme introversion.

Other chromosomal abnormalities may cause mental retardation. The most common type is Down syndrome. Babies with Down syndrome are born with an extra chromosome on the twenty-first pair. Some physical characteristics are indicative of Down syndrome: rounded face, shorter fingers, and toes, slanted eyes set far apart, and some degree of mental retardation.

Twin studies: ***Thomas Bouchard*** found more than 100 identical twins who were given up for adoption and raised in different families. The study compared hundreds of traits and concluded about the relative influences of genetics and the environment on specific traits. For example, the study found a correlation coefficient of 0.69 on the IQ test for identical twins raised apart and 0.88 for identical twins living together. This shows that the environment has some effect on IQ scores since twins raised in the same family have more similar Iqs. However, the Iqs of twins raised apart (adoption studies) are still highly correlated, demonstrating that IQ is also heavily influenced by genetics. Twin studies like this one have been criticized in one important way, however. Even twins raised in separate families obviously share very similar physical appearances. This physical similarity may cause others to treat them in similar ways, creating the same effective psychological environment for both twins. This similarity in the environment might explain the high correlations that Bouchard attributed to genetic influence.

I can predict how traits and behavior can be selected for their adaptive value.

Natural selection is the principle that, among the range of inherited trait variations, those contributing to reproduction and survival will most likely be passed on to succeeding generations. **Evolutionary psychology** is the study of the evolution of behavior and the mind, using principles of natural selection.

Some variations arise from ***mutations*** (random errors in gene replication), and others from new gene combinations at conception. Humans share a genetic legacy and are predisposed to behave in ways that promoted our ancestor's surviving and reproduction.

Charles Darwin's theory of evolution is an organizing principle in biology. He anticipated today's application of evolutionary principles in psychology.

Please read: **Study #2**

Over-learning

JOHN GABRIELI M.I.T. LECTURE 3: THE BRAIN 1 STRUCTURES AND FUNCTIONS

JOHN GABRIELI M.I.T. LECTURE 4: BRAIN 2 RESEARCH METHODS

Sensation and Perception

Everything that organisms know about the world is first encountered when stimuli in the environment activate sensory organs, initiating awareness of the external world. Perception involves the interpretation of the sensory inputs as a cognitive process.

Myers Modules 16-21 pages 150-216

6 to 8 % of AP Course

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- ☐ **I can discuss basic principles of sensory transduction, including absolute threshold, difference threshold, signal detection, and sensory adaptation.**
- ☐ **I can describe sensory processes (e.g., hearing, vision, touch, taste, smell, vestibular, kinesthesis, pain), including the specific nature of energy transduction, relevant anatomical structures, and specialized pathways in the brain for each of the senses.**
- ☐ **I can explain common sensory disorders (e.g., visual and hearing impairments).**
- ☐ **I can describe general principles of organizing and integrating sensation to promote stable awareness of the external world (e.g., Gestalt principles, depth perception).**
- ☐ **I can discuss how experience and culture can influence perceptual processes (e.g., perceptual set, context effects).**
- ☐ **I can explain the role of top-down processing in producing vulnerability to illusion.**
- ☐ **I can discuss the role of attention in behavior.**
- ☐ **I can challenge common beliefs in parapsychological phenomena.**
- ☐ **I can identify the major historical figures in sensation and perception (e.g., Gustav Fechner, David Hubel, Ernst Weber, Torsten Wiesel).**

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Define and Apply the following the following Vocab and/or concepts

sensation
perception
bottom-up processing
top-down processing
selective attention
inattentional blindness
change blindness
transduction
psychophysics
absolute threshold
signal detection theory
subliminal
priming
difference threshold
Weber's law
sensory adaptation
perceptual set
extrasensory perception (ESP)
parapsychology
wavelength
hue
intensity

pupil
iris
lens
retina
accommodation
rods
cones
optic nerve
blind spot
fovea
feature detectors
parallel processing

Young-Helmholtz trichromatic (three-color) theory

opponent-process theory
gestalt
figure-ground
grouping
depth perception
visual cliff
binocular cues
retinal disparity

monocular cues
phi phenomenon
perceptual constancy
color constancy
perceptual adaptation
audition
frequency
pitch
middle ear
cochlea
inner ear
sensorineural hearing loss
conduction hearing loss
cochlear implant
place theory
frequency theory
gate-control theory
kinesthesia
vestibular sense
sensory interaction
embodied cognition

Gustav Fechner
Robert Fantz
Eleanor Gibson
David Hubel
Ernst Weber
Torsten Wiesel

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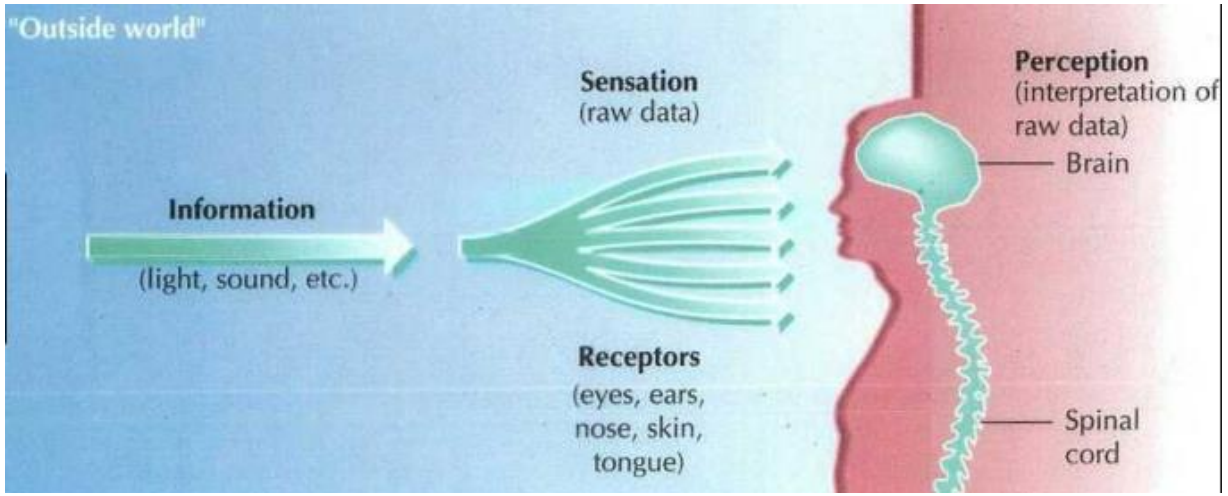
I can discuss basic principles of sensory transduction, including absolute threshold, difference threshold, signal detection, and sensory adaptation.

SENSATION

Sensation is the process by which our sensory receptors respond to light, sound, odor, textures, and taste and transmit that information to the brain. Our eyes, ears, nose, tongue, and skin comprise an elaborate sensory system that receives and processes information (messages) from the environment.



PERCEPTION

Perception refers to the process by which the brain actively selects, organizes, And assigns meaning to incoming neural messages sent from sensory receptors.

Think of **sensation as activation of our senses** (eyes, ears, and so on) and **perception as the process of understanding these sensations**.

I can explain the role of top-down processing in producing vulnerability to illusion.

Top-down processing occurs when you use your background knowledge to fill in gaps in what you perceive. Our experience creates ***schemata***, mental representations of how we expect the world to be. Our schemata influence how we perceive the world. Schemata can create a ***perceptual set***, which is a predisposition to perceive something in a certain way.

I _ope yo_ _et a 5 on t_ _ A_ e_am.

How might someone seeing pictures in clouds or hearing evil messages in music played backwards be attributed to top-own processing?

Bottom-up processing, also called feature analysis, is the opposite of top-down processing. Instead of using our experience to perceive an object, we use only the features of the object itself to build a complete perception. We start our perception at the bottom with the individual characteristics of the image and put all those characteristics together into our final perception.

Bottom-up processing can be hard to imagine because it is such an automatic process. The feature detectors in the visual cortex allow us to perceive basic features of objects, such as horizontal and vertical lines, curves, motion, and so on. Our mind builds the picture from the bottom up using these basic characteristics. We are constantly using both bottom-up and top-down processing as we perceive the world. Top-down processing is faster but more prone to error, while bottom-up processing takes longer but is more accurate.

I can discuss basic principles of sensory transduction, including absolute threshold, difference threshold, signal detection, and sensory adaptation.

By one estimate, your five senses take in 11,000,000 bits of information per second, of which you consciously process about 40. Yet your mind's unconscious track intuitively makes us of the other 10, 999, 960 bits. ***Selective attention*** refers to the focusing of conscious awareness of a particular stimulus. What we perceive is determined by what sensations activate our senses and by what we focus on perceiving.

We can voluntarily attend to stimuli in order to perceive them, as we are doing right now, but paying attention can also be involuntary. If you are talking with a friend and someone across the room says your name, your attention will probably involuntarily switch across the room (this is sometimes called the ***cocktail-party phenomenon***). These processes are our only way to get information about the outside world..

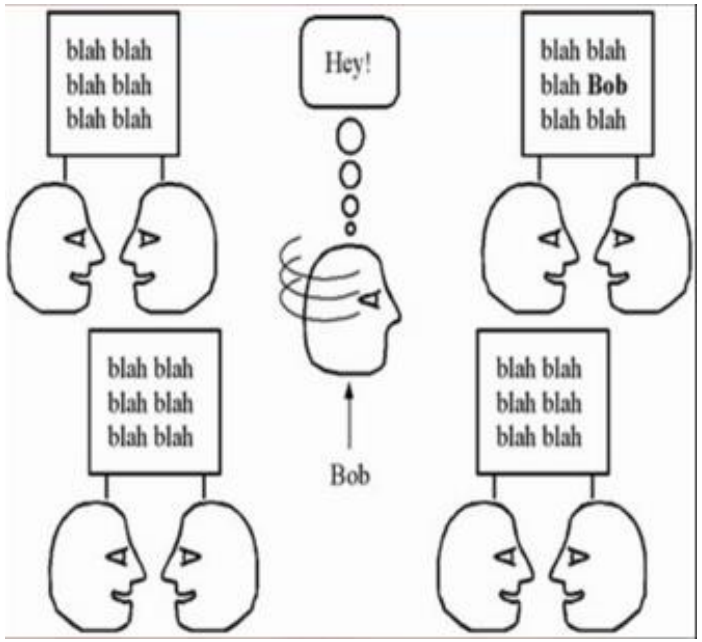
Of course, there is also the concept of selective inattention which refers to not being consciously Aware of a stimulus. A good example of this is ***inattentional blindness*** which occurs when we fail to see visible objects when our attention is directed elsewhere.

Change blindness occurs when people, focused on a particular stimulus fails to notice changes in the environment.

CHANGE BLINDNESS

While a man (white hair) provides directions to a construction worker, two experimenters rudely pass between them carrying a door.

During this interruption, the original worker switches places with another person wearing different colored clothing. Most people, focused on their direction giving, do not notice the switch.



Please watch

Video: Change Blindness

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Our senses gather information (messages) from our environment. These messages go through a process called ***transduction***, which means the signals are transformed into neural impulses. This occurs because each sense organ contains specialized cells called receptors which detect and then convert light waves, sound waves, chemical molecules, and pressure Into neural impulses that are transmitted to the brain. In this unit, we will be studying ***psychophysics***, the study of how we psychologically experience the physical characteristics of stimuli.

As noted by psychologist Philip Zimbardo, the transduction "process seems so immediate and direct that it fools us into assuming that the sensation of redness is characteristic of a tomato or the sensation of cold is characteristic of ice cream." In reality, sensations such as "red" and "cold" occur only when the neural impulses reach the brain."

These neural impulses travel first to the thalamus (the message center) and then on to different cortices of the brain (you will see later that the sense of smell is the one exception to this rule). What we sense and perceive is influenced by many factors, including how long we are exposed to stimuli. For example, people who live next to an airport claim that they no longer notice the sound of the aircraft. They probably stopped perceiving the sound of the planes because of a combination of ***sensory adaptation*** (decreasing responsiveness to stimuli due to constant stimulation) and ***sensory habituation*** (our perception of sensations is partially due to how focused we are on them).

THRESHOLDS

Absolute threshold is the minimum amount of a stimulus that an observer can reliably detect at least 50 percent of the time. For example, the human visual system can barely detect a candle flame at a distance of about 30 miles on a clear, dark night. Most humans can smell a single drop of perfume one room away. Stimuli that you cannot detect 50 percent of the time are ***subliminal*** or below your absolute threshold.

Detecting a weak stimulus, or signal, depends not only on the signal's strength but also on our psychological state- our expectations, motivations, and alertness. ***Signal detection theory*** predicts how and when we detect the presence of faint stimuli amid background stimuli.

Difference Threshold The minimal difference needed to notice a stimulus change. The difference threshold is also called the "just noticeable difference" or JND. A measure of the smallest increase or decrease in a physical The stimulus that is required to produce a difference in the sensation is noticeable 50% of the time.

.Under certain conditions we can be affected by a stimulus so weak that we don't consciously notice them. An An unnoticed image or word can reach your visual cortex and briefly ***prime*** your response to a later decision.

How might advertisements or campaign ads on T.V. use priming to influence your future decisions

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Weber's law

The German psychologist ***Ernst Weber*** (1795–1878) observed that the just noticeable difference will vary depending on its relation to the original stimulus. According to Weber's law, the size of the just noticeable difference is proportional to the strength of the original stimulus. For example, for the average person to perceive their difference, two objects must differ in weight by 2 percent. (Note: Some textbooks refer to this law as the Weber-Fechner law to honor the contributions of psychophysicist ***Gustav Fechner***, 1801–1887).

For example, a weight lifter who is bench pressing 50 pounds would notice the addition of a 5-pound weight. However, the same weight lifter would not notice the extra 5 pounds if he were bench pressing 500 pounds. Or, you might notice a change if someone adds a small amount of cayenne pepper to a dish that is normally not very spicy, but you would need to add much more hot pepper to five-alarm chili before anyone would notice a difference. Further, Weber discovered that each sense varies according to a constant, but the constants differ between the senses.

I can discuss how experience and culture can influence perceptual processes (e.g. perceptual set, context effects).

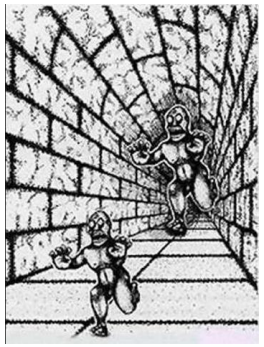
To see is to believe. As we less fully appreciate, to believe is to see. Through experience, we come to expect certain results. Those expectations may give us a ***perceptual set***, a set of mental tendencies and assumptions that greatly affect (top-down) what we perceive. Perceptual sets can influence what we hear, taste, feel, and see.

What you see in the middle picture is influenced By the picture to the left and right.

Using the idea of perceptual set explain why people are more likely to see a ghost during Halloween.

Context Effects

A given stimulus may trigger different perceptions, partly because of our differing perceptual set, but also because of immediate context. The ***Context Effect*** states that the context (environmental factors) that surrounds an event effects how an event is perceived and remembered.



Which monster is bigger?

Did you notice that the "H" in the and the "A" in cat are the exact shape?

Seal trainer and seal? Or Ballroom dance?

How might an owner of a store or restaurant use the context effect to bring back customers?

Emotion and Motivation can have an impact on our perceptions as well.

I can challenge common beliefs in parapsychological phenomena.

Perception without Sensation?
Without sensory input, are we capable of ***extrasensory perception*** (ESP)? Although controversial some people claim that perception can occur apart from sensory input; this includes telepathy (mind-to-mind communication), clairvoyance (perceiving remote events), and precognition (perceiving future events).

Psychokinesis is "mind over matter," such as moving objects only with your mind.

Although controversial some universities have added research units in ***parapsychology***. The researchers study paranormal phenomena such as ESP and psychokinesis.

Test Tip

The basic processes of sensation generate a significant number of multiple-choice questions. Make sure that you can define and illustrate transduction, absolute threshold, signal detection theory, and sensory adaptation.

Test Tip

Please Read Study 5

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I can describe sensory processes (e.g., hearing, **vision**, touch, taste, smell, vestibular, kinesthesis, pain**), including the specific nature of energy transduction, relevant anatomical structures, and specialized pathways in the brain for each of the senses.**

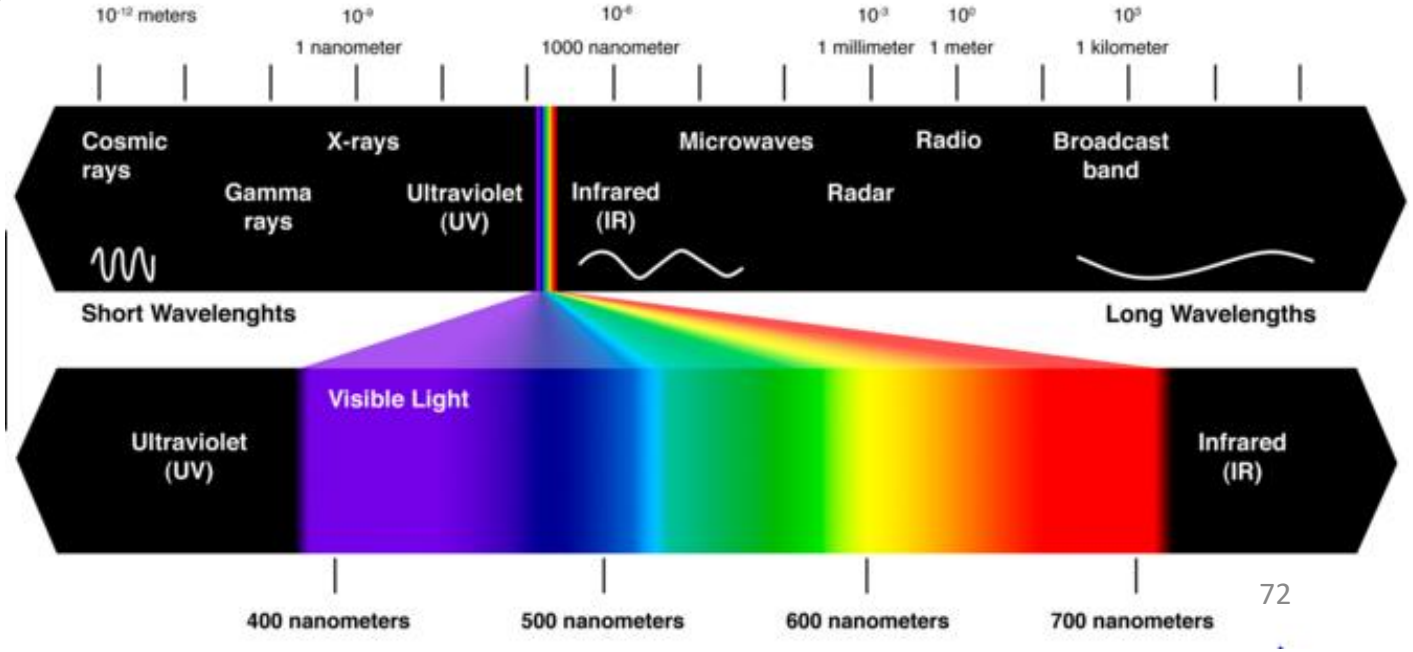
Vision

Vision is the dominant sense in human beings. Sighted people use vision to gather information about their environment more than any other sense. The process of vision involves several steps.

STEP ONE: GATHERING LIGHT

First, light is reflected off objects and gathered by the eye. Visible light is a small section of the electromagnetic spectrum that you may have studied in your science classes. The color we perceive depends on several factors. One is ***light intensity***. It describes how much energy the light contains. This factor determines how bright the object appears. A second factor, ***light wavelength***, determines the particular ***hue (dimension of color)*** we see. Wavelengths longer than visible light are infrared waves, microwaves, and radio waves. Wavelengths shorter than visible light include ultraviolet waves and X-rays.

We see different wavelengths within the visible light spectrum as different colors. The colors of the visible spectrum in order from longest to shortest wavelengths are red, orange, yellow, green, blue, indigo, and violet; you probably were taught the acronym Roy G. Biv to help you remember this order. As you were also no doubt taught, when you mix all these colors of light waves together, you get white light or sunlight. Although we think of objects as possessing colors (a red shirt, a blue car), objects appear the color they do as a result of the wavelengths of light they reflect. A redshirt reflects red light and absorbs other colors. Objects appear black because they absorb all colors and white because they reflect all wavelengths of light.



STEP TWO: WITHIN THE EYE

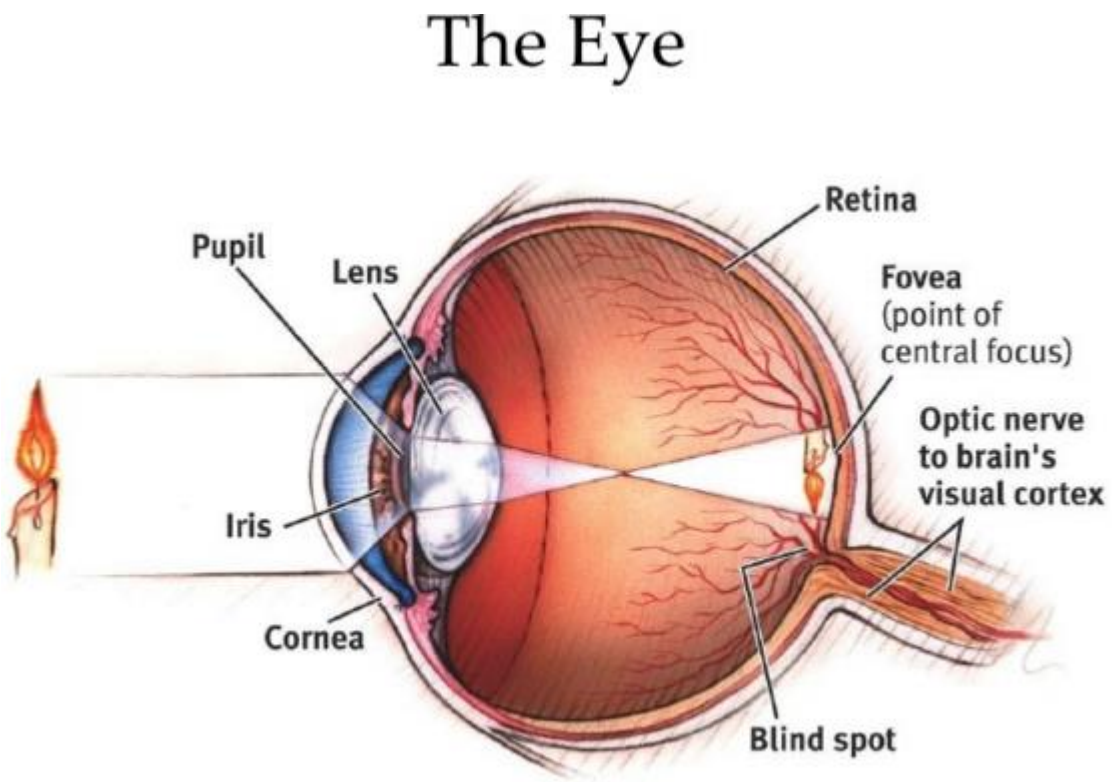
When we look at something, we turn our eyes toward the object and the reflected light coming from the object enters our eye.

1. The reflected light first enters the eye through the ***cornea***, a protective covering. The cornea also helps focus the light.

2. Then the light goes through the ***pupil***. The pupil is like the shutter of a camera. The muscles that control the pupil (called ***the iris***) open it (dilate) to let more light in and also make it smaller to let less light in.

3. Through a process called ***accommodation***, light that enters the pupil is focused by the **lens**; the lens is curved and flexible in order to focus the light.

4. As the light passes through the lens, the image is flipped upside down and inverted. The focused inverted image projects on the ***retina***, which is like a screen on the back of your eye. The retina is the light-sensitive membrane at the back of the eye. The retina contains millions of sensory receptors for vision. The transduction of light waves into neural messages occurs in the retina.



Try this: Hold up one finger and focus on it. Now, change your focus and look at the wall behind your finger. Then look at the finger again. You can feel the muscles changing the shape of your lens as you switch your focus.

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STEP THREE: TRANSDUCTION

The term ***transduction*** refers to the translation of incoming stimuli into neural signals. This term applies not only to vision but to all our senses.

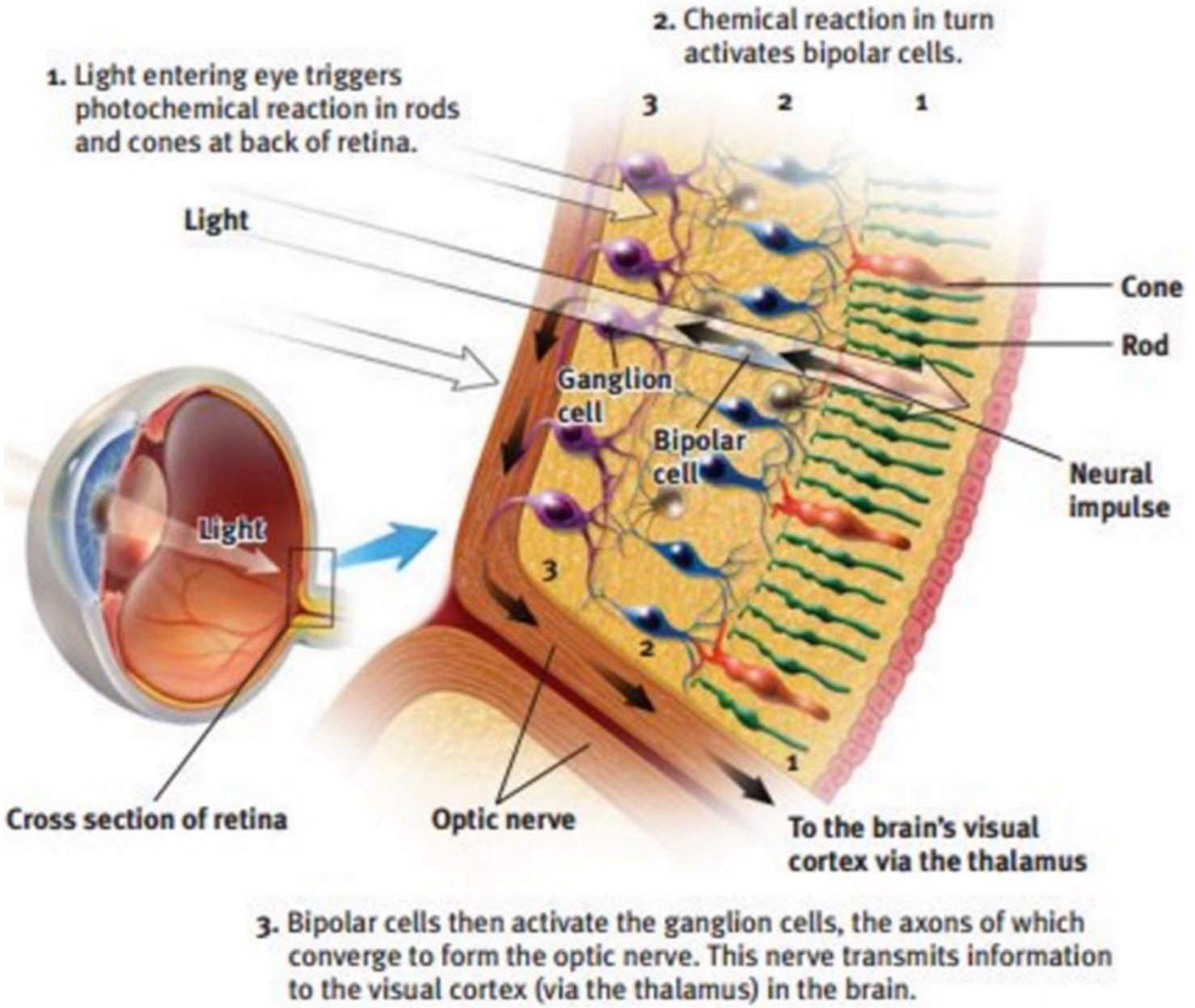
The ***retina*** is the light-sensitive membrane at the back of the eye. The retina contains millions of sensory receptors for vision. The transduction of light waves into neural messages occurs in the retina.

Rods are photoreceptors in the retina that are especially sensitive to dim light but not to colors. Rods allow you to see in poorly lit environments. Cats have better night vision than humans because they have a higher proportion of rods to cones than humans.

Cones are photoreceptors in the retina that are especially sensitive to colors and to bright light. Cones are concentrated in the center of the retina, in a small region called the fovea. Images that do not fall on the fovea tend to be perceived as blurry or indistinct.

Bipolar cells are specialized neurons that connect the rods and cones of ganglion cells. ***Ganglion cells*** are specialized neurons that connect to the bipolar cells. The bundled axons of the ganglion cells form the optic nerve. (see diagram to the right)

The blind spot is the point where the optic nerve leaves the eye and where there are no rods or cones. Because there are no rods or cones, we have a tiny hole or blind spot in our vision. Normally, we are unaware of the blind spot because our eyes are always moving.



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STEP FOUR: THE BRAIN

The axons of the ganglion cells make up the optic nerve that sends these impulses to a specific region in the thalamus called the ***lateral geniculate nucleus (LGN).*** From there, the messages are sent to the visual cortices located in the ***occipital lobes*** of the brain. The spot where the optic nerve leaves the retina has no rods or cones, so it is referred to as the ***blind spot***.

The optic nerve is divided into two parts. Impulses from the left side of each retina go to the left hemisphere of the brain. Impulses from the right side of each retina go to the right side of our brain. The spot where the nerves cross each other is called the ***optic chiasm***

The ***optic nerve*** carries visual information to the brain's visual cortex. The ***visual cortex*** lies in the occipital lobe at the back of the brain.

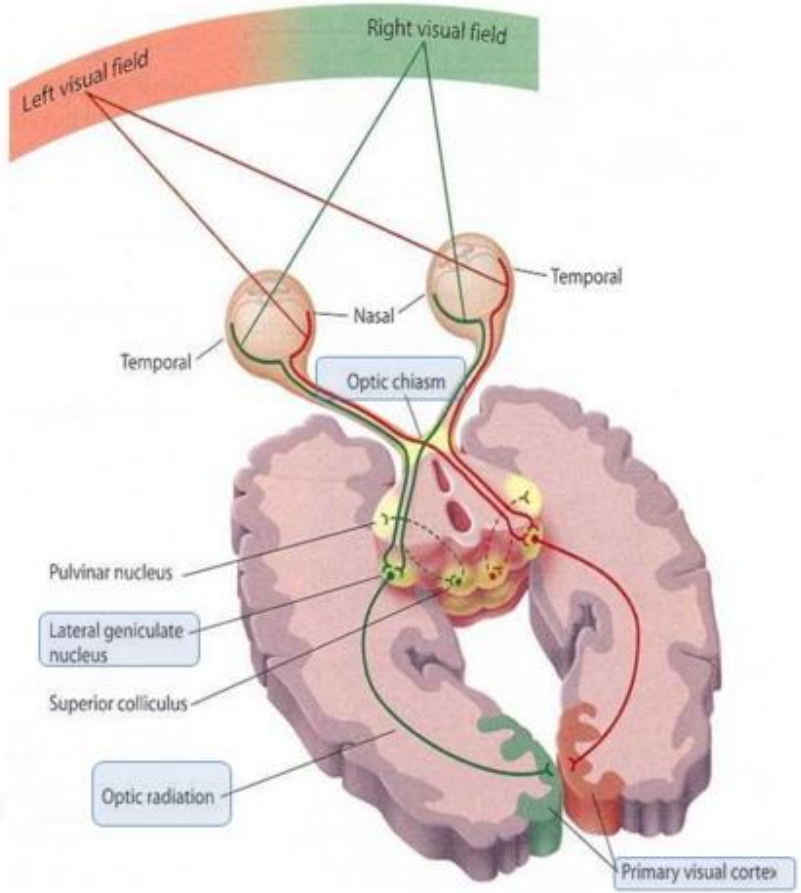
The visual cortex of the brain is located in the occipital lobe. The visual cortex of the brain receives the impulses from the cells of the retina, and the impulses activate ***feature detectors***. Perception researchers ***David Hubel*** (1926–present) and ***Torsten Wiesel*** (1924–present) discovered that groups of neurons in the visual cortex respond to different types of visual images.

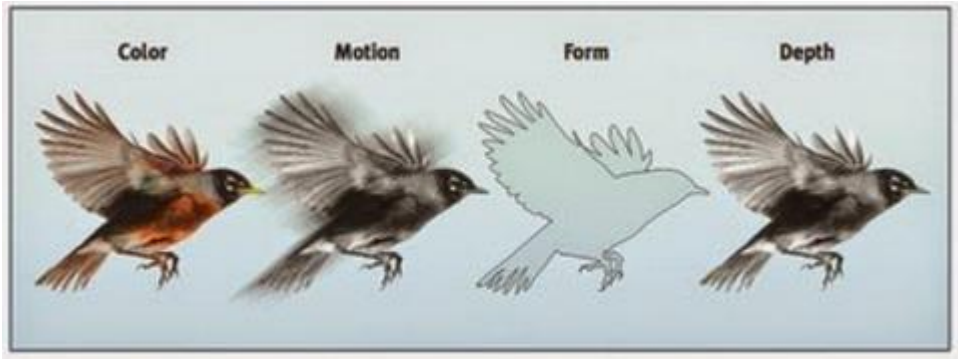
The visual cortex has feature detectors for vertical lines, curves, motion, and many other features of images. What we perceive visually is a combination of these features. This is an example of ***parallel processing***. Parallel processing occurs when brain cell teams process combined information about motion, form, depth, and color.

Recognition occurs when the brain interprets the constructed image based on information from stored images.

Visual Pathway

1. Cones
2. Bipolar neurons
3. Ganglion cell's axon forms the optic nerve
4. Optic nerve to the Optic Chiasm
5. Optic tract
6. Lateral geniculate nuclei of the thalamus
7. Optic Radiations
8. Primary visual areas of the occipital lobes





Parallel Processing

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I can explain common sensory disorders (e.g., visual and hearing impairments).

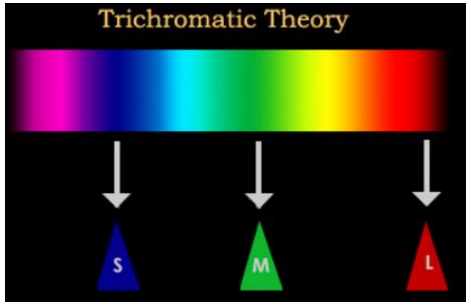
Theories of Color Vision

TRICHROMATIC THEORY

The ***Trichromatic theory*** hypothesizes that we have three types of cones in the retina: cones that detect the different colors blue, red, and green (the primary colors of light). These cones are activated in different combinations to produce all the colors of the visible spectrum.

This theory has some research support and makes sense intuitively but it cannot explain some visual phenomena, such as afterimages and color blindness. If you stare at one color for a while and then look at a white or blank space, you will see a color afterimage. If you stare at the green, the afterimage will be red, while the afterimage of yellow is blue.

Color blindness is similar. Individuals with ***dichromatic color blindness*** cannot see either red/green shades or blue/yellow shades. (The other type of color blindness is ***monochromatic***, which causes people to see only shades of gray.) Another theory of color vision is needed to explain these phenomena.



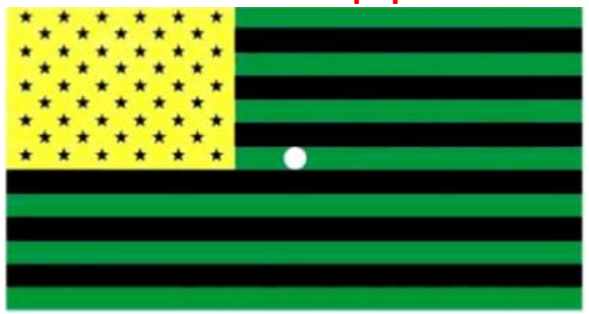
OPPONENT-PROCESS THEORY

The ***opponent-process theory*** states that the sensory receptors arranged in the retina come in pairs: red/green pairs, yellow/blue pairs, and black/white pairs.

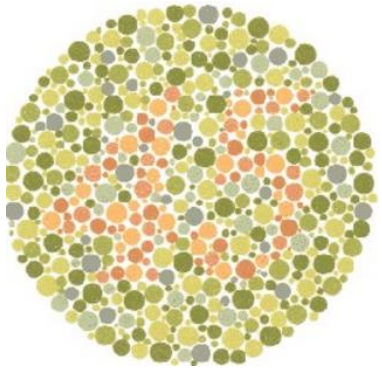
If one sensor is stimulated, its pair is inhibited from firing. This theory explains color after images well. If you stare at the color red for a while, you fatigue the sensors for red. Then when you switch your gaze and look at a blank page, the opponent part of the pair for red will fire, and you will see a green afterimage.

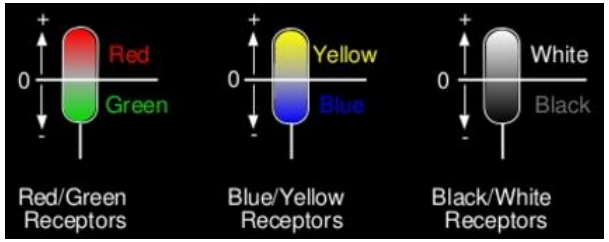
The opponent-process theory also explains color blindness. If color sensors do come in pairs and an individual is missing one pair, he or she should have difficulty seeing those hues. People with dichromatic color blindness have difficulty seeing shades of red and green or yellow and blue.

After image – stare at flag for a minute then look at a white wall or paper



What number is in the circle?



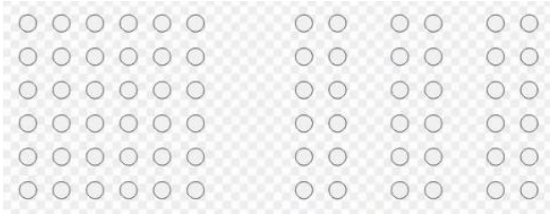


I can describe general principles of organizing and integrating sensation to promote stable awareness of the external world (e.g., Gestalt principles, depth perception).

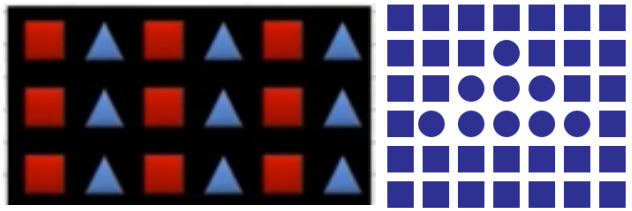
Gestalt psychology is the study how people organize perceptual experiences in understandable ways. "The whole is other than the sum of the parts." Introduced by Max Wertheimer it is based on the law of simplicity or "Pragnanz"- every stimulus is perceived in its most simple form.

Gestalt laws of perception

Proximity- objects place near each other tend to be perceived as on group



Similarity- we are more likely to group together objects that have similar qualities



Continuity- the mind continues visual, auditory, and kinetic patterns

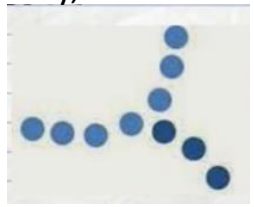
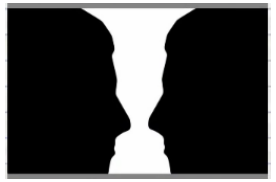
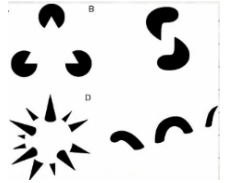


Figure-Ground- perceptual tendency to separate whole figures from their backgrounds

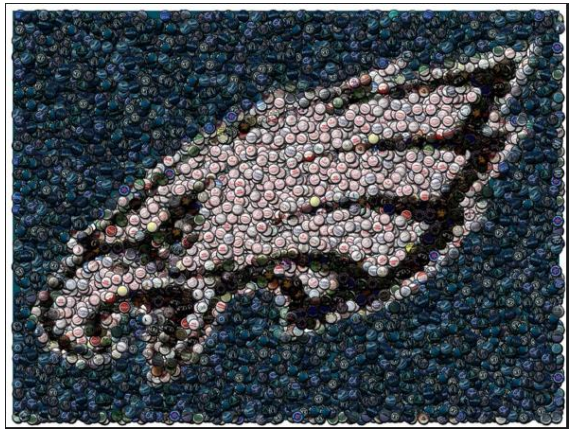


Pragnanz- reality is organized or reduced to the simplest form possible

Closure- our brains have a tendency to finish unfinished objects subconsciously



Gestalt psychology is a more holistic approach, the whole is other than the sum of its parts. In other words, the whole (a picture, a car) carries a different and altogether greater meaning than its individual components (paint, canvas, brush; or tire, paint, metal, respectively). In viewing the "whole," a cognitive process takes place and the mind makes a leap from comprehending the parts to realizing the whole.



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Depth Perception

Depth perception allows us to estimate the distance of an object from us. We can see images in 3 dimensions even though they strike the retina as two-dimensional images.

Eleanor Gibson and ***Richard Walk*** developed an experiment called the ***visual cliff*** (read below). They theorized that although depth perception may be partly learned there is also evidence that suggests that we are biologically predisposed to be wary of heights.

To judge distance we rely on depth cues, such as retinal disparity, that depend on two eyes. These cues are referred to as ***binocular cues***.

Retinal disparity- by comparing images from both retinas; the brain computes distance. The greater the disparity (difference) between the two retinas, the closer the object.

Monocular cues are depth cues that are available to either eye. Examples include interposition, relative size, linear perspective, and relative motion

Motion Perception

Motion perception is the process of inferring the speed and direction of elements in a scene based on visual inputs and assumptions about changing distances, sizes, and angles.

Although this process appears straightforward to most observers, it has proven to be a difficult problem from a computational perspective, and extraordinarily difficult to explain in terms of neural processing.

The ***Phi Phenomenon*** is an illusion of movement created when two or more adjacent lights blink on and off in quick succession

Perceptual Constancy

Perceptual Constancy refers to the perceiving of objects as unchanging (having consistent shapes, size, brightness, and color) even as illumination and retinal images change.

Color does not reside in an object. Our experience with color depends on the object's context.

Color Constancy is the perceiving of familiar objects as having consistent color, even if changing illumination alters the wavelength reflected by the object.

Brightness Constancy depends on the context

Size and Shape Constancy occurs when we perceive that the familiar size and form of an object are constant.

Test Tip

Many students find retinal disparity a difficult concept to grasp. Don't spend valuable study time trying to master the scientific principles of how retinal disparity works. For purposes of the AP Psychology exam, the key point is to know that retinal disparity is a binocular clue for depth perception.

Test Tip

Please Read Study 4

Please Watch Video:
SENSATION AND PERCEPTION

Please watch video:
PERCEIVING IN BELIEVING

https://www.verywellmind.com/what-are-monocular-cues-2795829

I can describe sensory processes (e.g., hearing, vision, touch, taste, smell, vestibular, kinesthesis, pain**), including the specific nature of energy transduction, relevant anatomical structures, and specialized pathways in the brain for each of the senses.**

Hearing - Our ***auditor***y sense also uses energy in the form of waves, but sound waves are vibrations in the air rather than electromagnetic waves. Sound waves are created by vibrations, which travel through the air and are then collected by our ears. These vibrations then finally go through the process of transduction into neural messages and are sent to the brain.

Sound waves, like all waves, have amplitude and frequency. ***Amplitude*** is the height of the wave and determines the loudness of the sound, which is measured in decibels. ***Frequency*** refers to the length of the waves and determines ***pitch***, measured in megahertz. High-pitched sounds have high frequencies, and the waves are densely packed together. Low-pitched sounds have low frequencies, and the waves are spaced apart.

1. (Outer Ear) Sound waves are collected in your outer ear, or pinna

2. The waves travel down the *ear canal* (also called the auditory canal) until they reach the *eardrum* or tympanic membrane. This is a thin membrane that vibrates as the sound waves hit it

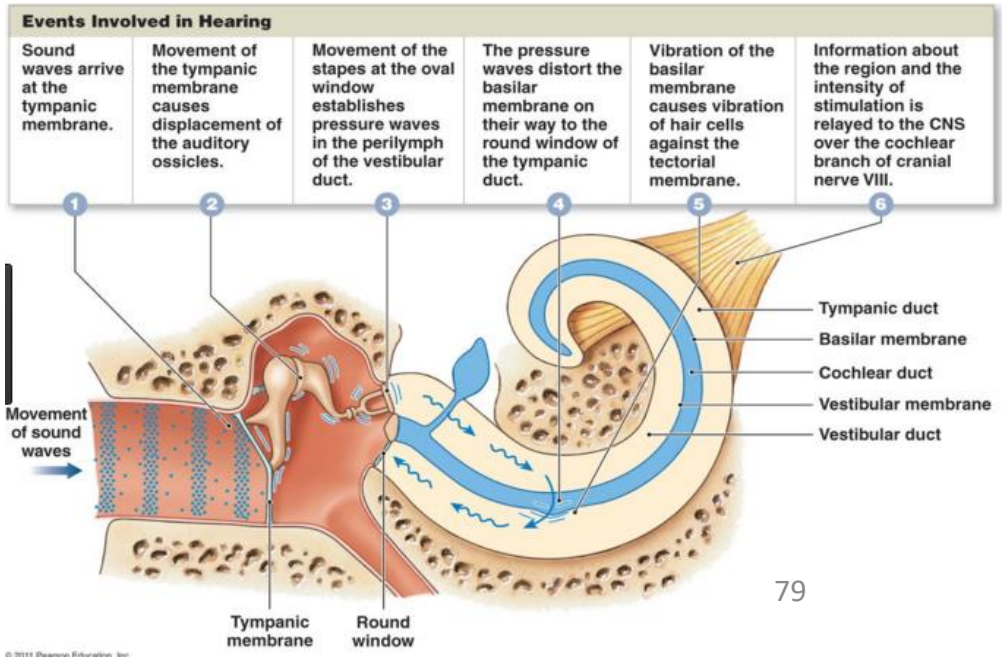
3. (Middle ear) This membrane is attached to the first in a series of three small bones collectively known as the ossicles. The eardrum connects with the *hammer* (or malleus), which is connected to the *anvil* (or incus), which connects to the *stirrup* (or stapes).

4. The vibration of the eardrum is transmitted by these three bones to the *oval window*, a membrane very similar to the eardrum.

5. (Inner Ear) The oval window membrane is attached to the *cochlea*, a structure shaped like a snail's shell filled with fluid. As the oval window vibrates, the fluid moves.

6. The floor of the cochlea is the basilar membrane. It is lined with hair cells connected to the *organ of Corti*, which are neurons activated by the movement of the hair cells. When the fluid moves, the hair cells move and transduction occurs.

7. The organ of Corti fires, and these impulses are transmitted to the brain via the auditory nerve. The auditory nerve carries the neural messages to the thalamus and then to the temporal lobe's auditory cortex.

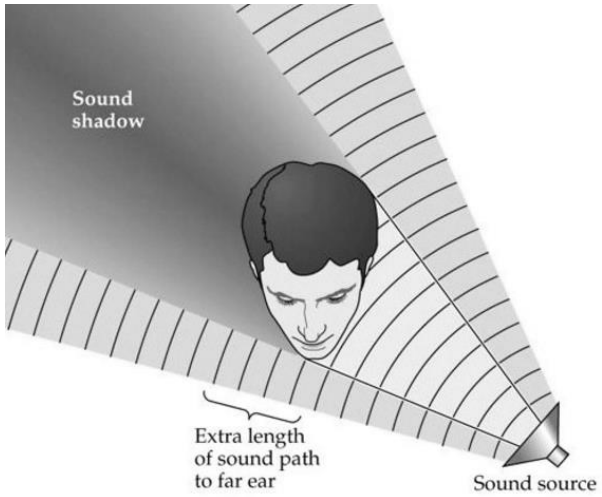


Pitch Theories

There are two different theories that describe the two processes involved in hearing pitch: place theory and frequency theory.

Place theory states that the pitch we hear links to the place where the cochlea's membrane is stimulated. Put differently, the hair cells in the cochlea respond to different frequencies of sound based on where they are located in the cochlea. Some bend in response to high pitches and some to low. We sense pitch because the hair cells move in different places in the cochlea.

Frequency theory is the theory that the rate of nerve impulses traveling up the auditory nerve matches the Frequency of the tone, thus enabling us to sense its pitch.



Locating Sound

Because our ears are located on opposite sides of our head, each ear receives the sound at different levels of The intensity and at slightly different times. The just noticeable difference allows us to locate the origin of the sound.

I can explain common sensory disorders (e.g., visual and hearing impairments).

An understanding of how hearing works explains hearing problems as well.

Conduction hearing loss occurs when something goes wrong with the system of conducting the sound to the cochlea (in the ear canal, eardrum, hammer/anvil/stirrup, or oval window). My father-in-law has a medical condition that is causing her stirrup to deteriorate slowly. Eventually, he will need surgery to replace that bone in order to hear well.

Nerve (or sensorineural) hearing loss occurs when the hair cells in the cochlea are damaged, usually by loud noise. If you have ever been to a concert, football game, or another event loud enough to leave your ears ringing, chances are you came close to or did cause permanent damage to your hearing. Prolonged exposure to noise that loud can permanently damage the hair cells in your cochlea, and these hair cells do not regenerate. Nerve deafness is much more difficult to treat since no method has been found that will encourage the hair cells to regenerate.

I can describe sensory processes (e.g., hearing, vision, **touch, taste, smell, vestibular, kinesthesis, pain), including the specific nature of energy transduction, relevant anatomical structures, and specialized pathways in the brain for each of the senses.**

Skin is our largest and heaviest sense organ. The skin protects our internal organs, holds body fluids, produces sensations of touch, warmth, and cold, and provides essential information about pain. We have many different types of nerve endings in every patch of skin, and the exact relationship between these different types of nerve endings and the sense of touch is not completely understood. Some nerve endings respond to pressure while others respond to temperature. We do know that our brain interprets the amount of indentation (or temperature change) as the intensity of the touch, from a light touch to a hard blow. Body senses provide essential information about your position and orientation in space.

Touch or pressure receptors are not evenly distributed among the different areas of our bodies. For example, they are more densely concentrated in the hands, face, and lips than on the legs or back. Touch plays a particularly important role in human relationships by helping communicate feelings of support, conformity, and love.

Pain is the unpleasant sensation of physical discomfort or suffering. Pain plays a key survival role by warning about potential or actual injuries.

The gate-control theory of pain

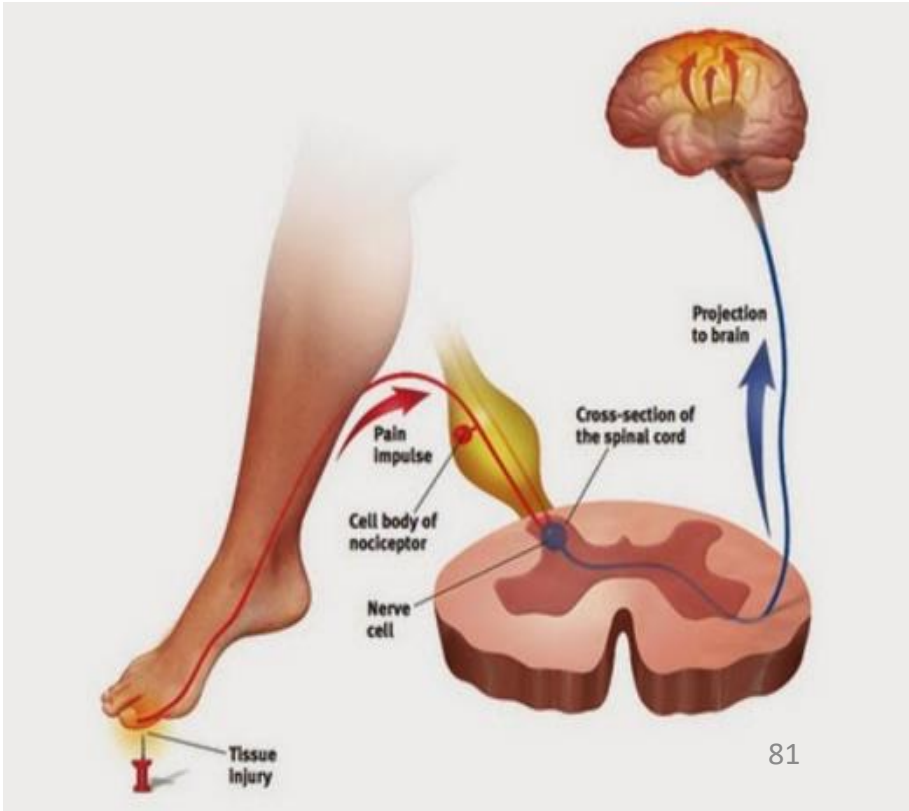
According to the gate-control theory, the brain regulates pain by sending signals down the spinal cord that either open or close sensory pathways or "gates." If the brain signals the gates to open, pain is experienced or intensified. If the brain signals the gates to close, pain is reduced.

Gate-control theory suggests that some pain messages have a higher priority than others. When a higher priority message is sent, the gate swings open for it and swings shut for a low priority message, which we will not feel. Of course, this gate is not a physical gate swinging in the nerve, it is just a convenient way to understand how pain messages are sent.

Endorphins, or pain-killing chemicals in the body, also swing the gate shut. Natural endorphins in the brain, which is chemically similar to opiates like morphine, controls pain.

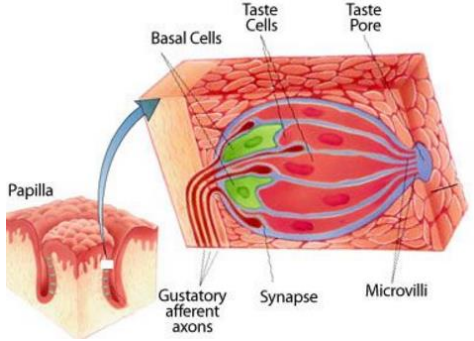
Psychological factors such as anxiety and fear can intensify pain while positive emotions such as laughter can help minimize pain.

The Brain can also create pain as in examples of phantom limbs.



CHEMICAL SENSES

Taste (or Gustation)



The nerves involved in the chemical senses respond to chemicals rather than to energy, like light and sound waves. Chemicals from the food we eat (or whatever else we stick into our mouths) are absorbed by taste buds on our tongues. Taste buds are located on papillae, which are the bumps you can see on your tongue. Taste buds are located all over the tongue and some parts of the inside of the cheeks and roof of the mouth.

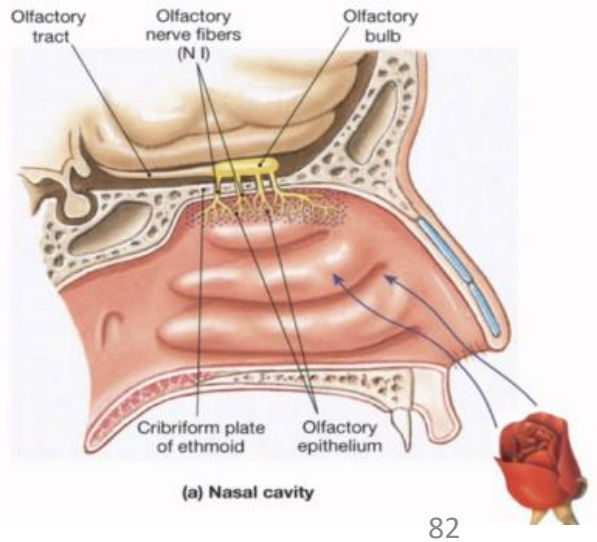
Humans sense five different types of tastes: sweet, salty, sour, bitter, and umami ("savory" or "meaty" taste). Some taste buds respond more intensely to a specific taste and more weakly to others. People differ in their ability to taste food. The more densely packed the taste buds, the more chemicals are absorbed, and the more intensely the food is tasted. You can get an idea of how densely packed taste buds are by looking at the papillae on your tongue. If all the bumps are packed tightly together, you probably taste food intensely. If they are spread apart, you are probably a weak taster. What we think of as the flavor of food is actually a combination of taste and smell.

THE SURVIVAL FUNCTIONS OF BASIC TASTES

Taste	Indicates
Sweet	Energy source
Salty	Sodium essential to physiological processes
Sour	Potentially toxic acid
Bitter	Potential poisons
Umami	Proteins to grow and repair tissue

Smell (or Olfaction)

Our sense of smell also depends on chemicals emitted by substances. Molecules of substances, hot chocolate, for example, rise into the air. Some of them are drawn into our noses. The molecules settle in a mucous membrane at the top of each nostril and are absorbed by receptor cells located there. The exact types of these receptor cells are not yet known, as they are for taste buds. Some researchers estimate that as many as 100 different types of smell receptors may exist. These receptor cells are linked to the olfactory bulb, which gathers the messages from the olfactory receptor cells and sends this information to the brain. Interestingly, the nerve fibers from the olfactory bulb connect to the brain at the amygdala and then to the hippocampus, which makes up the limbic system— responsible for emotional impulses and memory. The impulses from all the other senses go through the thalamus first before being sent to the appropriate cortices. This direct connection to the limbic system may explain why smell is such a powerful trigger for memories.



BODY POSITION SENSES

Vestibular Sense

Our vestibular sense tells us about how our body is oriented in space. Three semicircular canals in the inner ear give the brain feedback about body orientation. The canals are basically tubes partially filled with fluid. When the position of your head changes, the fluid moves in the canals, causing sensors in the canals to move. The movement of these hair cells activates neurons, and their impulses go to the brain. You have probably experienced the nausea and dizziness caused when the fluid in these canals is agitated. During an exciting roller-coaster ride, the fluid in the canals might move so much that the brain receives confusing signals about body position. This causes dizziness and a nauseous reaction.

Test Tip

Because of the importance of the retina and cochlea, it is easy to overlook the semicircular canals. Don't make this mistake. Be sure you know that the semicircular canals are located in the inner ear and are closely associated with the vestibular sense of balance.

Test Tip

Kinesthetic Sense

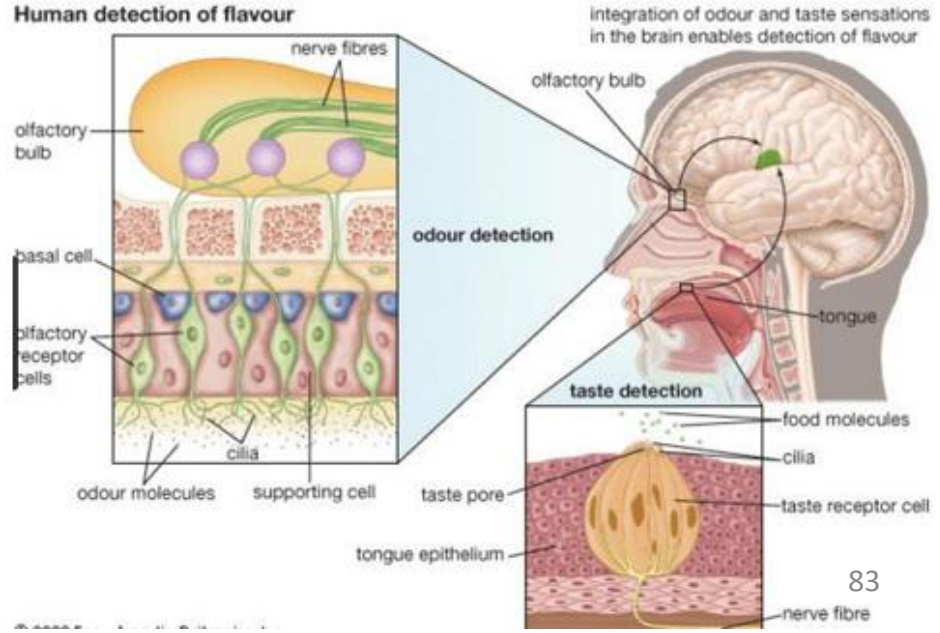
While our vestibular sense keeps track of the overall orientation of our body, our kinesthetic sense gives us feedback about the position and orientation of specific body parts. Receptors in our muscles and joints send information to our brains about our limbs. This information, combined with visual feedback, lets us keep track of our bodies. You could probably reach down with one finger and touch your kneecap with a high information about where your finger is in relation to your kneecap.

Our senses interact all the time to provide us with an accurate interpretation of the world, this is called ***sensory interaction.*** For example, to experience taste we must be able to smell. The feel of the food can also impact the taste. What do you like more? Fresh potato chips or stale potato chips?

Flavor = smell + texture + taste.

The McGurk Effect demonstrates that sound and sight also interact.

Embodied Cognition in psychological science refers to the influence of bodily sensations, gestures, and other states on cognitive preferences and judgments.



I can discuss the role of attention in behavior.

SELECTION

Selecting where to direct our attention is the first step in perception.
Selective attention and feature detectors help explain why we pay attention to some stimuli in our environment and not to others.

SELECTIVE ATTENTION

Selective attention is the cognitive process of selectively concentrating on one or more aspects of the environment while filtering out or ignoring other information.

Examples:

Gavin is playing a new video game with his friend. He doesn't hear his mother call for him to come to dinner. However, he does respond when his cell phone rings because he is expecting a call from his girlfriend.

Chloe is the star guard on her high school basketball team. During a big game, she doesn't hear the fans cheering for her. However, she does respond when her coach calls out a special play for her to run.

FEATURE DETECTORS

The brain contains specialized neurons called feature detectors that respond only to certain sensory information. David Hubel and Torsten Wiesel demonstrated that specialized neurons in the occipital lobe's visual cortex have the ability to respond to specific features of an image such as angles, lines, curves, and movements.

For example, an area just behind your right ear enables you to perceive faces. Damage to this area can result in prosopagnosia, a disorder that causes an inability to detect differences in faces. Persons suffering from prosopagnosia cannot recognize their own faces in a mirror.

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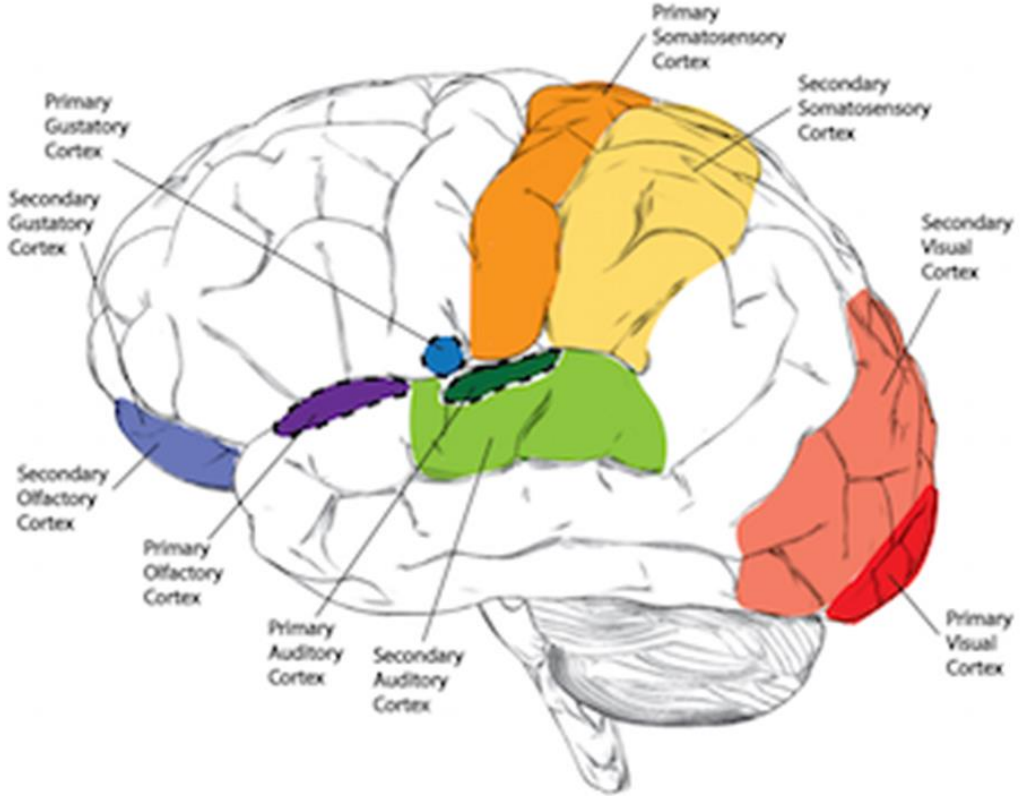
TABLE 5.3 Summarizing the Senses

Sensory System	Source	Receptors
Vision	Light waves striking the eye	Rods and cones in the retina
Hearing	Sound waves striking the outer ear	Cochlear hair cells in the inner ear
Touch	Pressure, warmth, cold on the skin	Skin receptors detect pressure, warmth, cold, and pain
Taste	Chemical molecules in the mouth	Basic tongue receptors for sweet, sour, salty, bitter, and umami
Smell	Chemical molecules breathed in through the nose	Millions of receptors at top of nasal cavity
Body position—kinesthesia	Any change in position of a body part, interacting with vision	Kinesthetic sensors in joints, tendons, and muscles
Body movement—vestibular sense	Movement of fluids in the inner ear caused by head/body movement	Hairlike receptors in the inner ear's semicircular canals and vestibular sacs



Over learning

Please Watch video: HOMUNCULUS

[JOHN GABRIELE M.I.T. LECTURE 5: VISION 1]

[JOHN GABRIELE M.I.T. LECTURE 6: VISION 2]

[JOHN GABRIELI M.I.T. LECTURE 7: ATTENTION]

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States of Consciousness

Understanding consciousness and what it encompasses is critical to an appreciation of what is meant by a given state of consciousness. The study of variations in consciousness includes an examination of the sleep cycle, dreams, hypnosis, circadian rhythms, and the effects of psychoactive drugs.

Myers Modules 22-25 pages 217-261

2 to 4 % of AP Course

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Objectives

- ☐ **I can describe various states of consciousness and their impact on behavior.**
- ☐ **I can discuss aspects of sleep and dreaming: stages and characteristics of the sleep cycle; theories of sleep and dreaming; symptoms and treatments of sleep disorders.**
- ☐ **I can describe historic and contemporary uses of hypnosis (e.g., pain control, psychotherapy).**
- ☐ **I can explain hypnotic phenomena (e.g., suggestibility, dissociation).**
- ☐ **I can identify the major psychoactive drug categories (e.g., depressants, stimulants) and classify specific drugs, including their psychological and physiological effects.**
- ☐ **I can discuss drug dependence, addiction, tolerance, and withdrawal.**
- ☐ **I can Identify the major figures in consciousness research (e.g., William James, Sigmund Freud, Ernest Hilgard).**

Define and Apply the following the following Vocab and/or concepts

consciousness
cognitive neuroscience
dual processing
hypnosis
posthypnotic suggestion
dissociation
circadian rhythm
REM sleep
alpha waves
sleep
hallucinations
delta waves
NREM sleep
suprachiasmatic nucleus (SCN)
insomnia

narcolepsy
sleep apnea
night terrors
dream
manifest content
latent content
REM rebound
substance use disorder
psychoactive drug
tolerance
addiction
withdrawal
depressants

alcohol use disorder
barbiturates
opiates
stimulants
amphetamines
nicotine
cocaine
methamphetamine
Ecstasy (MDMA)
hallucinogens
LSD
near-death experience
THC

William James
Sigmund Freud
Ernest Hilgard

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I can describe various states of consciousness and their impact on behavior.

OVERVIEW

Psychologists define ***consciousness*** as our level of personal awareness of thoughts, sensations, memories, and the external world. We are conscious to the degree that we are aware of what is going on inside and outside ourselves. Psychologists attempt to examine what we can know about consciousness and to describe some of the processes or elements of consciousness. ***William James*** likened consciousness to an everchanging "stream" or "river" that nonetheless is perceived as unified and unbroken.

Our consciousness awareness is one part of our dual processing, which refers to the principle that information is often simultaneously processed on separate conscious and unconscious tracks. Although much of our information process is at the conscious level- much is unconscious and automatic. Also, consider our selected attention and its impact on what we are and are not aware of.

LEVELS OF CONSCIOUSNESS

We experience different levels of consciousness in our daily life without being consciously aware of the experience

Conscious: The information about yourself and your environment you are currently aware of. Your level conscious level right now is probably focusing on these words and their meanings.

Nonconscious: Body processes controlled by your mind that we are not usually (or ever) aware of. The right level now, your nonconscious is controlling your heartbeat, respiration, digestion, and so on.

Preconscious: Information about yourself or your environment that you are not currently thinking about level (not at your conscious level) but you could be. If I asked you to remember your favorite toy as a child, you could bring that preconscious memory into your conscious level.

Subconscious: Information that we are not consciously aware of but we know must exist due to behavior. The behaviors demonstrated in examples of priming and mere-exposure effect suggests some information is accessible to this level of consciousness but not to our conscious level.

Unconscious: Psychoanalytic psychologists believe some events and feelings are unacceptable To our level of conscious mind and are repressed into the unconscious mind. Many psychologists object to this concept as difficult or impossible to prove.

Please Watch: CONSCIOUSNESS

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WHAT ARE BRAINWAVES?

At the root of all our thoughts, emotions and behaviors is the communication between neurons within our brains. Brainwaves are produced by synchronized electrical pulses from masses of neurons communicating with each other. Brainwaves are detected using sensors placed on the scalp. They are divided into bandwidths to describe their functions (below), but are best thought of as a continuous spectrum of consciousness; from slow, loud, and functional - to fast, subtle, and complex.

Our brainwaves change according to what we're doing and feeling. When slower brainwaves are dominant we can feel tired, slow, sluggish, or dreamy. The higher frequencies are dominant when we feel wired, or hyper-alert. Brainwave speed is measured in Hertz (cycles per second) and they are divided into bands delineating slow, moderate, and fast waves.

INFRA-LOW WAVES are thought to be the basic cortical rhythms that underlie our higher brain functions. Very little is known about infra-low brainwaves. Their slow nature makes them difficult to detect and accurately measure. They appear to take a major role in brain timing and network function.

DELTA WAVES are slow, loud brainwaves. They are generated in deepest meditation and dreamless sleep. Delta waves suspend external awareness and are the source of empathy. Healing and regeneration are stimulated in this state, which is why deep restorative sleep is essential to the healing process.

THETA WAVES occur most often in sleep but are also dominant in deep meditation. Theta is our gateway to learning, memory, and intuition. In theta, our senses are withdrawn from the external world and focused on signals originating from within. It is that twilight state which we normally only experience fleetingly as we wake or drift off to sleep. In theta we are in a dream; with vivid imagery, intuition, and information beyond our normal conscious awareness. It's where we hold our 'stuff', our fears, troubled history, and nightmares.

ALPHA WAVES are dominant during quietly flowing thoughts and in some meditative states. Alpha is 'the power of now', being here, in the present. Alpha is the resting state of the brain. Alpha waves aid overall mental coordination, calmness, alertness, mind/body integration, and learning.

BETA WAVES dominate our normal waking state of consciousness when attention is directed toward cognitive tasks and the outside world. Beta is a 'fast' activity, present when we are alert, attentive, engaged in problem-solving, judgment, decision-making, or focused mental activity. Beta brainwaves are further divided into three bands; Lo-Beta can be thought of as a 'fast idle', or musing. Beta is a high engagement or actively figuring something out. Hi-Beta is a highly complex thought, integrating new experiences, high anxiety, or excitement. Continual high-frequency processing is not a very efficient way to run the brain, as it takes a tremendous amount of energy.

GAMMA WAVES are the fastest of brain waves and relate to the simultaneous processing of information from different brain areas. Gamma brainwaves pass information rapidly and quietly. In the most subtle of the brainwave frequencies, the mind has to be quiet to access gamma.

I can discuss aspects of sleep and dreaming: stages and characteristics of the sleep cycle; theories of sleep and dreaming; symptoms and treatments of sleep disorders.

Sleep

To a psychologist, referring to being asleep as being unconscious is incorrect. Sleep is one of the states of consciousness. According to the psychological definition of consciousness, sleep is a state of consciousness because, while we are asleep, we are less aware of ourselves and our environment than we are when we are in our normal awake state. Other states of consciousness—drug-induced states, hypnosis, and so on—are states of consciousness for similar reasons.

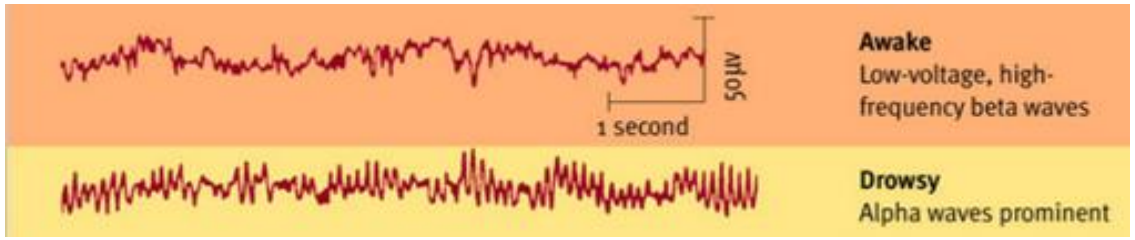
Sleep Cycle

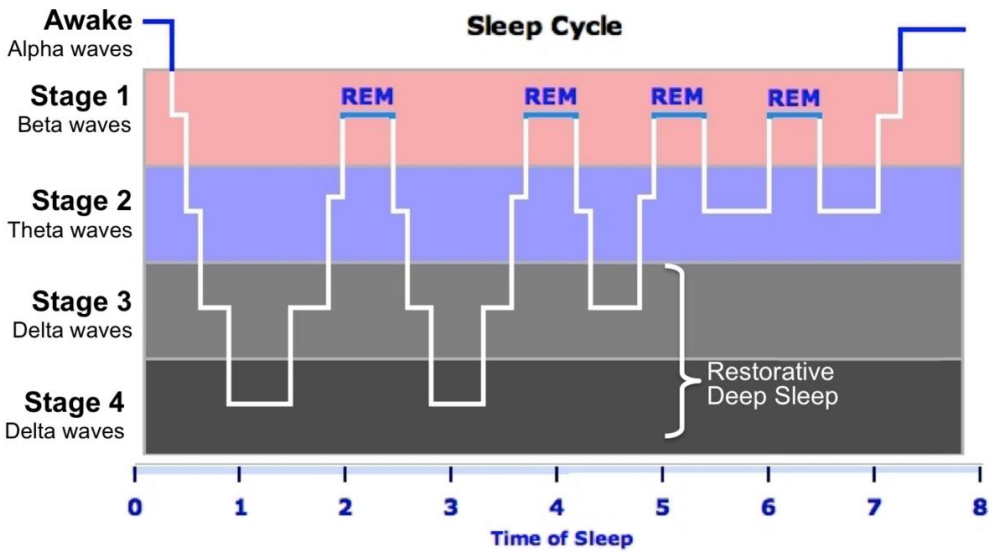
During a 24-hour day, our metabolic and thought processes follow a certain pattern. The circadian (ser-KAY-dee-an) rhythm refers to the bodily rhythms (for example, of temperature and wakefulness) that occur on the 24-hour cycle. Part of our circadian rhythm is our sleep cycle. Our sleep cycle is our typical pattern of sleep. Researchers using EEG machines can record how active our brains are during sleep and describe the different stages of sleep we progress through each night. Refer to the diagram to the right for a graphic representation of the stages of a typical sleep cycle.

As you can see from the diagram, sleep is far from being a time of unconsciousness. We cycle through different stages of sleep during the night. Our brain waves and level of awareness change as we cycle through the stages.

Sleep onset

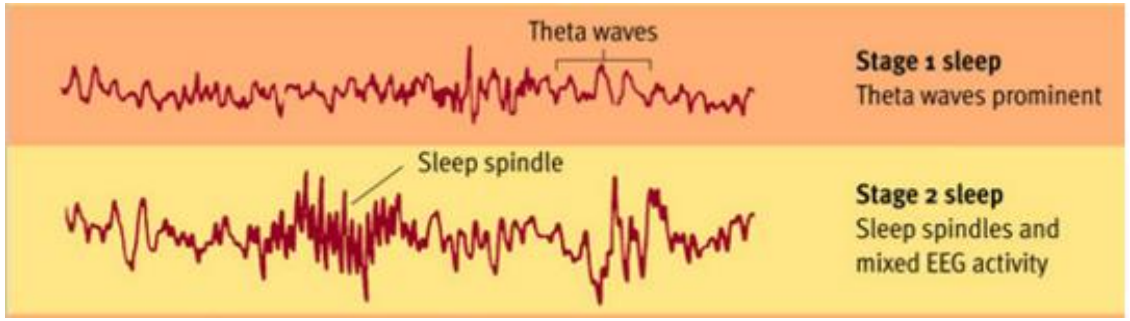
The period when we are falling asleep is called sleep onset. This is the stage between wakefulness and sleep. Our brain produces alpha waves when we are drowsy but awake. We might experience mild ***hallucinations*** (such as falling or rising) before actually falling asleep and entering stage 1.

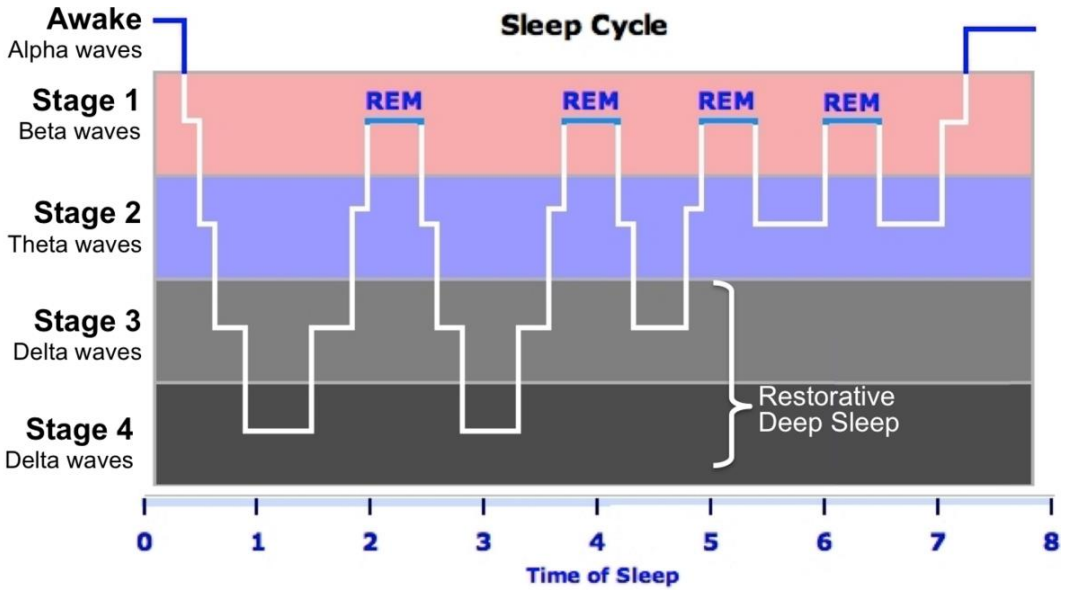




Stages 1 and Stage 2

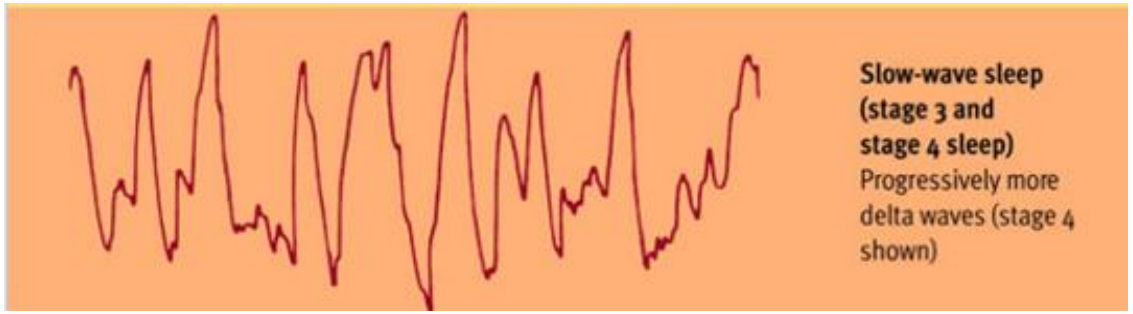
While we are awake and in stages 1 and 2, our brains produce theta waves, which are relatively high-frequency, low-amplitude waves. However, the theta waves get progressively slower and higher in amplitude as we go from wakefulness through stages 1 and 2. In stage 2, the EEG starts to show sleep spindles, which are short bursts of rapid brain waves. From there, we move into stages 3 and 4





Stage 3 and Stage 4

Delta sleep (also called slow-wave sleep) because of the delta waves that exist during these stages. The slower the wave (slow waves are low-frequency waves), the deeper the sleep and the less aware we are of our environment. A person in the delta sleep is very difficult to wake up. If you are awakened out of delta sleep, you may be very disoriented and groggy. Delta sleep seems to be very important in replenishing the body's chemical supplies, releasing growth hormones in children, and fortifying our immune system. A person deprived of delta sleep will be more susceptible to illness and will feel physically tired. Increasing exercise will increase the amount of time we spend in stages 3 and 4.



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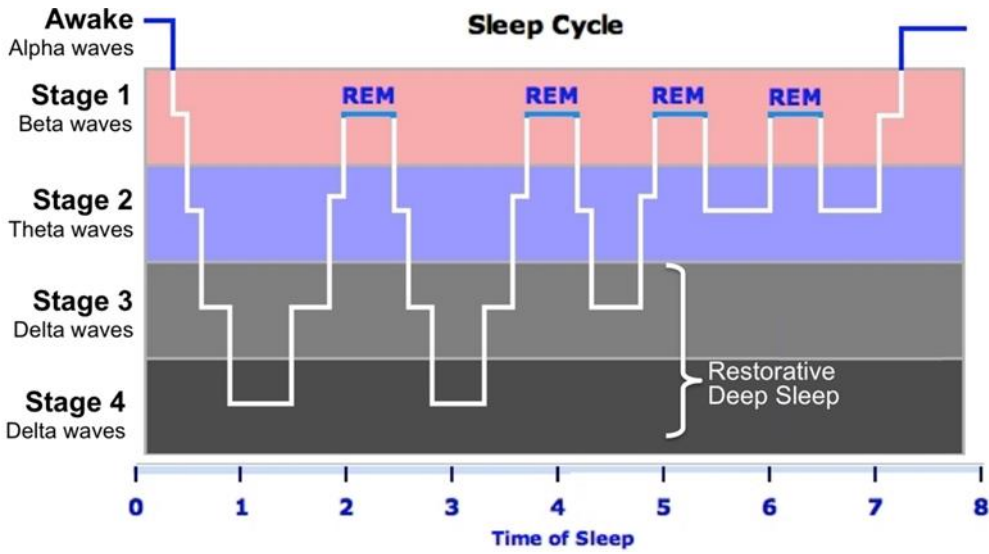
After a period of time in delta sleep, our brain waves start to speed up and we go back through stages 3 and 2. However, as we reach stage 1, our brain produces a period of intense activity, our eyes dart back and forth, and many of our muscles may twitch repeatedly. This is ***REM—rapid eye movement***. This sleep stage is sometimes called paradoxical sleep since our brain waves appear as active and intense as they do when we are awake.



The exact purposes of REM are not clear, but some effects are known. Dreams usually occur in REM sleep. (Dreams can occur in any stage of sleep, but it is far more likely that any detailed dream occurs in REM.) REM sleep deprivation interferes with memory. Individuals deprived of REM sleep will experience REM rebound—experiencing more and longer periods of REM—the next time they are allowed to sleep normally. The more stress we experience during the day, the longer our periods of REM sleep will be.

Notice in the figure that not only do we cycle through these approximately 90-minute stages about 4–7 times during the night, but the cycle itself also varies during the night. As we get closer to morning (or whenever we naturally awaken), we spend more time in stages 1 and 2 and in REM sleep and less in stages 3 and 4. Also, age affects the pattern. Babies not only spend more total time sleeping than we do (up to 18 hours), but they also spend more time in REM sleep. As we age, our total need for sleep declines as does the amount of time we spend in REM sleep. Although research has not answered all the questions about sleep, details about our sleep cycle provide clues as to why we spend so much of our life in this altered state of consciousness.

Note: ***NREM*** – non-rapid eye movement sleep, encompasses all sleep stages except for REM sleep.

Test Tip

Sleep cycles typically generate one or two very specific multiple-choice questions. Be sure you know that REM sleep is highly correlated with dreams and that sleep spindles occur in Stage 2 sleep.

Test Tip

Please Read: Study 6

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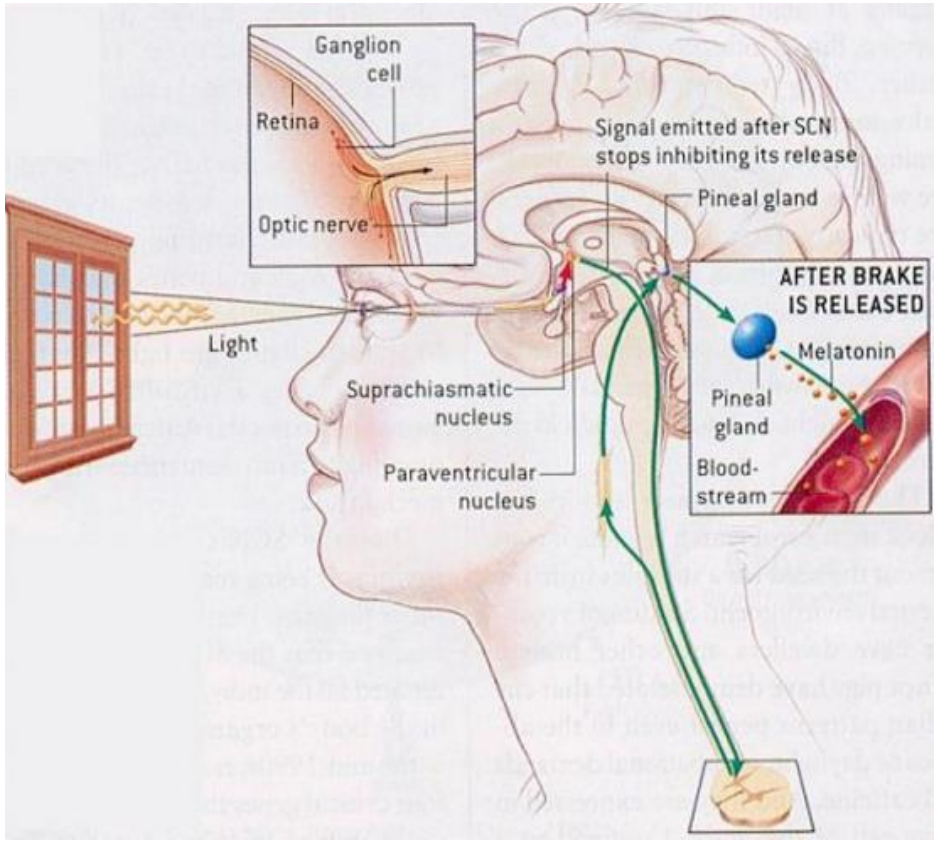
Cultures and individuality impact the amount of sleep people typically receive.

Also, the circadian rhythm is controlled by a pair of cell clusters located in the hypothalamus called the ***suprachiasmatic nucleus (SCN***). In the morning, light striking the retina signals the SCN suppresses the pineal gland's production of the sleep-inducing hormone ***melatonin***. At night, the SCN quiets down, allowing the pineal gland to release melatonin into the bloodstream.



Sleep Theories

THE RESTORATION THEORY OF SLEEP

Proponents of this theory argue that sleep rejuvenates the mind and the body. REM sleep restores mental and brain functions, while NREM sleep restores key physical functions.

The restoration theory is supported by studies in which researchers selectively deprive subjects of REM sleep. When subjects are allowed to resume uninterrupted sleep cycles, they experience a REM rebound or dramatic increase in REM sleep. The same rebound phenomenon occurs when subjects are deprived of NREM sleep.

THE ADAPTIVE THEORY OF SLEEP

Evolutionary psychologists argue that sleep patterns evolved so that both human and non-human animals could conserve energy and avoid predators.

Evolutionary psychologists also argue that sleep is a necessary part of circadian cycles.

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SLEEP DISORDERS

A. Insomnia is The most common sleep disorder characterized by persistent problems in falling asleep, staying asleep, or awakening too early. Insomnia is usually treated with suggestions for changes in behavior: reduction of caffeine or other stimulants, exercise at appropriate times (not right before bedtime) during the day, and maintaining a consistent sleep pattern. Doctors and researchers encourage insomniacs to use sleeping pills only with caution, as they disturb sleep patterns during the night and can prevent truly restful sleep.

B. *Sleep Apnea is* common in overweight men over the age of 50 and is characterized by loud snoring, irregular breathing, and gasping for air. Apnea causes a person to stop breathing for short periods of time during the night. The body causes the person to wake up slightly and gasp for air, and then sleep continues. This process robs the person of deep sleep and causes tiredness and possible interference with attention and memory. Severe apnea can be fatal. Since these individuals do not remember waking up during the night, apnea frequently goes undiagnosed. Overweight men are at a higher risk for apnea. Apnea can be treated with a respiration machine that provides air for the person as he or she sleeps.

C. Narcolepsy is very uncommon. Characterized by chronic sleep attacks which can occur at any time, in any place, and often at inappropriate times that may be accompanied by muscle paralysis. Narcoleptics may suddenly fall into REM sleep regardless of what they are doing at the time. The exact cause is unknown but it does appear to be genetic. Treatment may involve medications including stimulants and antidepressants and utilizing scheduled naps.

D. Sleepwalking is much more common in children than adults2. Characterized by an episode of walking or performing other actions during Stage 3 or Stage 4 of NREM sleep.

E. *Night Terrors* usually affect children, and most do not remember the episode when they wake up. The exact causes are not known, but night terrors are probably related in some way to somnambulism (sleepwalking). They occur more commonly in children, and both phenomena occur during the first few hours of the night in stage 4 sleep. Most people stop having night terrors and episodes of somnambulism as they get older.

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DREAMS

Dreams are a difficult research area for psychologists because they rely almost entirely on self-reports. As mentioned previously, researchers know that if people are awakened during or shortly after a REM episode, they often report they were dreaming. Researchers theorize about the purposes and meanings of dreams. However, validating these theories is difficult with the limited access researchers currently have to dreams.

THE PSYCHOANALYTIC/PSYCHODYNAMIC VIEW

In The Interpretation of Dreams, ***Sigmund Freud*** boldly declared that dreams are "the royal road to the unconscious." According to Freud, dreams provide insights into unconscious motives by expressing hidden desires and conflicts. According to Freud, dreams contain a storyline or ***manifest content*** that consists of symbols. The manifest symbols disguise the dream's true meaning. Freud believed that the hidden or ***latent content*** provides the dream's real unconscious meaning. Although very provocative, Freud's theory is subjective and lacks scientific support.

THE ACTIVATION-SYNTHESIS VIEW

Sleep researcher ***J. Allan Hobson's*** research findings led him to propose that the dreaming brain is responding to its own internally generated signals. The brain, Hobson argues, synthesizes these spontaneous signals into coherent patterns or dreams. Hobson does not believe that dreams are completely meaningless. Unlike Freud, he believes that a dream's meaning is not derived from decoding hidden symbols, but from analyzing the personal way in which a dream organizes images.

THE INFORMATION-PROCESSING VIEW

The ***information-processing*** theory of dreaming falls somewhere in between the Freudian and activation-synthesis theories. This theory points out that stress during the day will increase the number and intensity of dreams during the night. Also, most people report their dream content relates somehow to daily concerns. Proponents of information processing theorize that perhaps the brain is dealing with daily stress and information during REM dreams. The function of REM may be to integrate the information processed during the day Babies may need more REM sleep than adults because they process so much new information every day.

DREAM THEORIES

Theory	Explanation	Critical Considerations
Freud's wish-fulfillment	Dreams provide a "psychic safety valve"—expressing otherwise unacceptable feelings; contain manifest (remembered) content and a deeper layer of latent content—a hidden meaning.	Lacks any scientific support; dreams may be interpreted in many different ways.
Information-processing	Dreams help us sort out the day's events and consolidate our memories.	But why do we sometimes dream about things we have not experienced?
Physiological function	Regular brain stimulation from REM sleep may help develop and preserve neural pathways.	This may be true, but it does not explain why we experience *meaningful* dreams.
Activation-synthesis	REM sleep triggers impulses that evoke random visual memories, which our sleeping brain weaves into stories.	The individual's brain is weaving the stories, which still tells us something about the dreamer.
Cognitive theory	Dream content reflects dreamers' cognitive development—their knowledge and understanding.	Does not address the neuroscience of dreams.

Please Read: Study 7

PLEASE WATCH VIDEO: TO SLEEP, PERCHANCE TO DREAM

I can describe historic and contemporary uses of hypnosis (e.g., pain control, psychotherapy).

I can explain hypnotic phenomena (e.g., suggestibility, dissociation).

Hypnosis is a trance-like state of heightened suggestibility, deep relaxation, and intense focus.

Some believe that hypnosis can be used to reduce stress and anxiety, treat chronic pain, manage pain during medical and dental procedures, and help efforts to lose weight and stop smoking. Hypnotherapists try to help people harness their own healing powers. ***Posthypnotic suggestions*** are suggestions made during a hypnosis session, to be carried out after the subject is no longer hypnotized; they are used by some clinicians to help control undesired symptoms and behaviors.

Regardless of popular belief, no one can be hypnotized against his or her will and hypnosis cannot make people violate their moral values. Additionally, hypnosis cannot bestow new talents or make a person stronger.

Explanations of Hypnosis

Dissociation

Ernest Hilgard conducted an experiment in which hypnotized subjects showed no sign of pain when they submerged their arms in an ice bath. However, when Hilgard asked the subjects to lift their index finger if they felt pain, 70 percent did. Hilgard theorized that hypnosis induces a special state of ***dissociation*** or divided consciousness. Dissociation enables the hypnotized subjects to consciously respond to the hypnotist's suggestion that the cold water is not painful. At the same time, the hypnotized subjects processed a second dissociated stream of mental activity that enabled them to sense the water's temperature.

Test Tip

Given the amount of attention devoted to Freud's psychoanalytic theory of dreams, it is easy to overlook the research of Ernest Hilgard on hypnosis.

Don't make this mistake. Be sure that you can identify and briefly explain Hilgard's theory of dissociation.

Test Tip

Please Read: Study 8

Social influence theory

Proponents of the social influence theory argue that there is no such thing as a hypnotic trance. Instead, people are enacting the socially constructed role of the hypnotic subject. The social influence theory explains Hilgard's findings by theorizing that his subjects ignored the cold because they were caught up in the role of being hypnotized subject.

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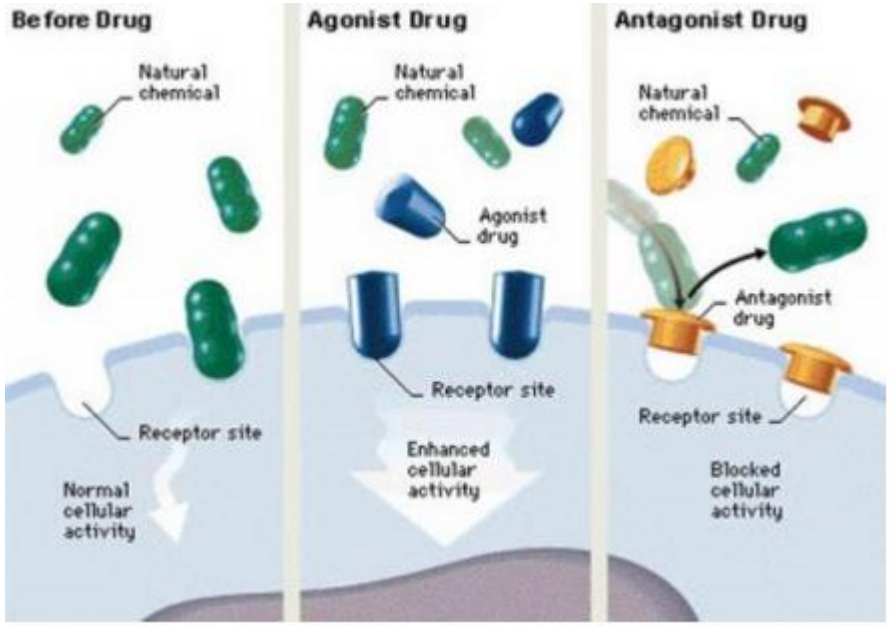
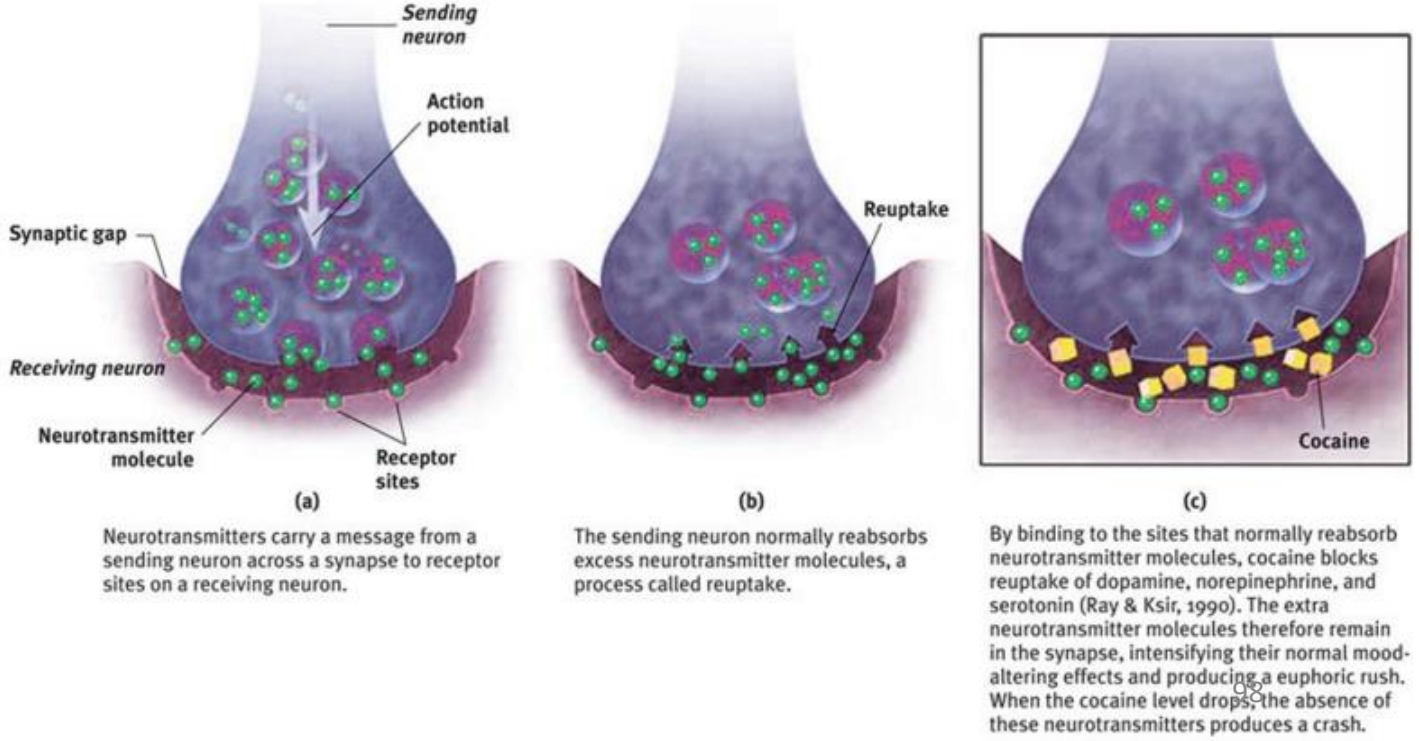
I can discuss drug dependence, addiction, tolerance, and withdrawal

Psychoactive drugs are chemicals that change the chemistry of the brain (and the rest of the body) and induce an altered state of consciousness. Some of the behavioral and cognitive changes caused by these drugs are due to physiological processes, but some are due to expectations about the drug (this is similar to the placebo effect).

All psychoactive drugs change our consciousness through similar physiological processes in the brain. Normally, the brain is protected from harmful chemicals in the bloodstream by thicker walls surrounding the brain's blood vessels. This is called the ***blood-brain barrier***. However, the molecules that make up psychoactive drugs are small enough to pass through the blood-brain barrier. These molecules either mimic or block naturally occurring neurotransmitters in the brain.

The drugs that mimic neurotransmitters are called ***agonists***. These drugs fit in the receptor sites on a neuron that normally receives the neurotransmitter and function as that neurotransmitter normally would. The drugs that block neurotransmitters are called ***antagonists***. These molecules also fit into receptor sites on a neuron. However, instead of acting like the neurotransmitter, they simply prevent the natural neurotransmitters from using that receptor site.





(a)

Neurotransmitters carry a message from a sending neuron across a synapse to receptor sites on a receiving neuron.

(b)

The sending neuron normally reabsorbs excess neurotransmitter molecules, a process called reuptake.

(c)

By binding to the sites that normally reabsorb neurotransmitter molecules, cocaine blocks reuptake of dopamine, norepinephrine, and serotonin (Ray & Ksir, 1990). The extra neurotransmitter molecules therefore remain in the synapse, intensifying their normal mood-altering effects and producing a euphoric rush. When the cocaine level drops, the absence of these neurotransmitters produces a crash.

I can discuss drug dependence, addiction, tolerance, and withdrawal

Other drugs prevent natural neurotransmitters from being reabsorbed back into a neuron, creating an abundance of that neurotransmitter in the synapse. No matter what mechanism they use, drugs gradually alter the natural levels of neurotransmitters in the brain. The brain will produce less of a specific neurotransmitter if it is artificially supplied by a psychoactive drug.

This change causes ***tolerance (***bodily adjustment to higher and higher levels of a drug, which leads to decreased sensitivity), a physiological change that produces a need for more of the same drug in order to achieve the same effect. Tolerance may eventually lead to ***addiction*** (cravings for a substance or behavior despite adverse consequences). Stopping the drug will eventually cause ***withdrawal (***the painful experience associated with stopping the use of addictive drugs) symptoms in users.

Withdrawal symptoms vary from drug to drug. They range from the headache I might get if I do not consume any caffeine during the day to the dehydrating and potentially fatal night sweats (sweating profusely during sleep) a heroin addict experiences during withdrawal. ***Dependence*** on psychoactive drugs can be either psychological or physical or can be both.

Persons psychologically dependent on a drug feel an intense desire for the drug because they are convinced they need it in order to perform or feel a certain way. Persons physically dependent on a substance have a tolerance for the drug, experience withdrawal symptoms without it, and need the drug to avoid withdrawal symptoms.

When Is Drug Use a Disorder?

Diminished Control
1. Uses more substance, or for longer, than intended.
2. Tries unsuccessfully to regulate use of substance.
3. Spends much time acquiring, using, or recovering from effects of substance.
4. Craves the substance.
Diminished Social Functioning
5. Use disrupts commitments at work, school, or home.
6. Continues use despite social problems.
7. Causes reduced social, recreational, and work activities.
Hazardous Use
8. Continues use despite hazards.
9. Continues use despite worsening physical or psychological problems.
Drug Action
10. Experiences tolerance (needing more substance for the desired effect).
11. Experiences withdrawal when attempting to end use.

Please Watch Video: ALTERED STATES

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I can identify the major psychoactive drug categories (e.g., depressants, stimulants) and classify specific drugs, including their psychological and physiological effects.

Stimulants act on the brain and other parts of the central nervous system by producing alertness, excitement, elevated mood, and general responsiveness. Stimulants speed up body processes, including autonomic nervous system functions such as heart and respiration rate. This dramatic increase is accompanied by a sense of euphoria. Caffeine, nicotine, amphetamine, and cocaine are all stimulants.

Depressants act on the brain and other parts of the central nervous system by decreasing bodily processes, reducing reaction times, and causing a feeling of well-being. Depressants slow down the same body systems that stimulants speed up

Alcohol, barbiturates, and anti-anxiety drugs, such as Valium, are all depressants. Alcohol is the most used and most abused depressant. The inhibition of different brain regions causes behavioral changes.

Opiates numb the senses and relieve pain. Morphine, heroin, and codeine are all opiates. The opiates all act as agonists for endorphins and thus are powerful painkillers and mood elevators. Opiates cause drowsiness and euphoria associated with elevated endorphin levels. Opiates are some of the most physically addictive drugs because they rapidly change brain chemistry and create tolerance and withdrawal symptoms. Opiates are extremely addictive and withdrawal is excruciatingly painful.

Hallucinogens produce sensory or perceptual distortions called hallucinations. These drugs cause changes in perceptions of reality, including sensory hallucinations, loss of identity, and vivid fantasies Marijuana and LSD are the best-known hallucinogens.

Drug	Type	Pleasurable Effects	Negative Aftereffects
Alcohol	Depressant	Initial high followed by relaxation and disinhibition	Depression, memory loss, organ damage, impaired reactions
Heroin	Depressant	Rush of euphoria, relief from pain	Depressed physiology, agonizing withdrawal
Caffeine	Stimulant	Increased alertness and wakefulness	Anxiety, restlessness, and insomnia in high doses; uncomfortable withdrawal
Nicotine	Stimulant	Arousal and relaxation, sense of well - being	Heart disease, cancer
Cocaine	Stimulant	Rush of euphoria, confidence, energy	Cardiovascular stress, suspiciousness, depressive crash
Methamphetamine	Stimulant	Euphoria, alertness, energy	Irritability, insomnia, hypertension, seizures
Ecstasy (MDMA)	Stimulant; mild hallucinogen	Emotional elevation, disinhibition	Dehydration, overheating, depressed mood, impaired cognitive and immune functioning
LSD	Hallucinogen	Visual "trip"	Risk of panic
Marijuana (THC)	Mild hallucinogen	Enhanced sensation, relief of pain, distortion of time, relaxation	Impaired learning and memory, increased risk of psychological disorders, lung damage from smoke

Test Tip

Psychoactive drugs are a fascinating, timely, and controversial topic. While they are a significant public issue, proactive drugs play a limited role in the AP Psychology exam. Alcohol is the substance most frequently asked about on the AP Psychology exam. Be sure you know that it is a depressant and that its psychological effects are strongly influenced by the user's expectations.

Test Tip

Learning

This section of the course introduces students to the differences between learned and unlearned behavior. The primary focus is an exploration of different kinds of learning, including classical conditioning, operant conditioning, and observational learning. The biological bases of behavior illustrate predispositions for learning.

Myers Modules 26-30 pages 263-315

7 to 9% of AP Course

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Objectives

- ☐ I can distinguish general differences between principles of classical conditioning, operant conditioning, and observational learning (e.g., contingencies).
- ☐ I can describe basic classical conditioning phenomena, such as acquisition, extinction, spontaneous recovery, generalization, discrimination, and higher-order learning.
- ☐ I can predict the effects of operant conditioning (e.g., positive reinforcement, negative reinforcement, punishment).
- ☐ I can predict how practice, schedules of reinforcement, and motivation will influence quality of learning.
- ☐ I can interpret graphs that exhibit the results of learning experiments.
- ☐ I can provide examples of how biological constraints create learning predispositions.
- ☐ I can describe the essential characteristics of insight learning, latent learning, and social learning.
- ☐ I can apply learning principles to explain emotional learning, taste aversion, superstitious behavior, and learned helplessness.
- ☐ I can suggest how behavior modification, biofeedback, coping strategies, and self control can be used to address behavioral problems.
- ☐ I can identify key contributors in the psychology of learning (e.g., Albert Bandura, John Garcia, Ivan Pavlov, Robert Rescorla, B. F. Skinner, Edward Thorndike, Edward Tolman, John B. Watson).

Define and Apply the following the following Vocab and/or concepts

learning
Habituation (see extinction)
associative learning
stimulus
cognitive learning
classical conditioning
behaviorism
neutral stimulus (NS)
unconditioned response (UR)
unconditioned stimulus (US)
conditioned response (CR)
conditioned stimulus (CS)
acquisition
higher-order conditioning (2nd order)
extinction
spontaneous recovery

generalization
discrimination
operant conditioning,
law of effect
operant chamber
reinforcement
shaping
discriminative stimulus
positive reinforcement
negative reinforcement
primary reinforcer
conditioned reinforcer
reinforcement schedule
continuous reinforcement
partial (intermittent) reinforcement
fixed-ratio schedule
variable-ratio schedule
fixed-interval schedule
variable-interval schedule

punishment
biofeedback
respondent behavior
operant behavior
cognitive map
latent learning
insight
intrinsic motivation
extrinsic motivation
coping
problem-focused coping
emotion-focused coping
learned helplessness
external locus of control
internal locus of control
self-control
observational learning
modeling
mirror neurons
prosocial behavior

Albert Bandura,
John Garcia
Ivan Pavlov
Robert Rescorla
B. F. Skinner
Edward Thorndike
Edward Tolman
John B. Watson

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I can distinguish general differences between principles of classical conditioning, operant conditioning, and observational learning (e.g., contingencies).

Learning is the process of acquiring new or modifying existing knowledge, behaviors, skills, values, or preferences. Evidence that learning has occurred may be seen in changes in behavior from simple to complex, from moving a finger to skill in synthesizing information, or a change in attitude. The ability to learn is possessed by humans and animals. Some learning is immediate, induced by a single event (e.g. being burned by a hot stove), but much skill and knowledge accumulates from repeated experiences. The changes induced by learning often last a lifetime, and it is hard to distinguish learned material that seems to be "lost" from that which cannot be retrieved. Learning is commonly defined as a long-lasting change in behavior resulting from experience. Although learning is not the same as behavior, most psychologists accept that learning can best be measured through changes in behavior. Brief changes or natural changes are not thought to be indicative of learning.

Non-associative learning refers to "a relatively permanent change in the strength of response to a single stimulus due to repeated exposure to that stimulus. Changes due to such factors as sensory adaptation, fatigue, or injury do not qualify as non-associative learning." Non-associative learning can be divided into habituation and sensitization.

Habituation is an example of non-associative learning in which the strength or probability of a response diminishes when The response is repeated. The response is typically a reflex or unconditioned response. An example of habituation can be Seen in Crows—if a scarecrow is placed in the field, the birds initially react to it as though it were a real predator. Soon the birds react less, showing habituation

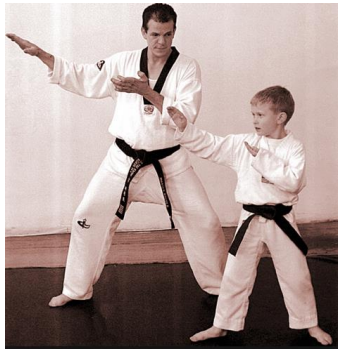
Sensitization, in psychology, refers to a non-associative learning process through which repeated exposure to a stimulus results in the progressive amplification (increasing strength) of the reaction to the stimulus. The organism is becoming more sensitive to the stimulus as time progresses. An example could be a child who is bullied at school. Initially, it doesn't bother them that much but as time goes on and the stimulus (bullying) is re-experienced repeatedly then the child may experience a sensitization to social activity and start to fear other schoolmates in general, perhaps becoming antisocial, withdrawn, and very upset about social interactions.

INSTINCTS VERSUS LEARNING - Instincts are unlearned behaviors due to evolutionary programming that are found in almost all members of a species. For example, bears hibernate, geese migrate, and salmon swim upstream to spawn. Learning represents a significant evolutionary advance over instinctive behavior. Learning enables humans to acquire new knowledge that can be transferred from one generation to another.

Associative learning is the process by which a person or animal learns an association between two stimuli. In classical conditioning a previously neutral stimulus is repeatedly paired with a reflex-eliciting stimulus until eventually, the neutral stimulus elicits a response on its own. In operant conditioning, a behavior that is reinforced or punished in the presence of a stimulus becomes more on less likely to occur in the presence of that stimulus.

Cognitive Learning Theory is a broad theory that explains thinking and differing mental processes and how they are influenced by internal and external factors in order to produce learning in individuals. When cognitive processes are working normally then acquisition and storage of knowledge works well, but when these cognitive processes are ineffective, learning delays and difficulties can be seen.

These cognitive processes are: observing, categorizing, and forming generalizations about our environment. A disruption in these natural cognitive processes can cause behavioral problems in individuals and the key to treating these problems lies in changing the disrupted process. For example, a person with an eating disorder genuinely believes that they are extremely overweight. Some of this is due to a cognitive disruption in which their perception of their own weight is skewed. A therapist will try to change their constant pattern of thinking that they are overweight in order to decrease the unhealthy behaviors that are a result of it.



Observational learning is learning that occurs through observing the behavior of others. It is a form of social learning which takes various forms, based on various processes. In humans, this form of learning seems to not need reinforcement to occur but instead requires a social model such as a parent, sibling, friend, or teacher with surroundings.

I can describe basic classical conditioning phenomena, such as acquisition, extinction, spontaneous recovery, generalization, discrimination, and higher-order learning.

CLASSICAL CONDITIONING - First proposed and studied by a Russian physiologist named ***Ivan Pavlov***, ***classical conditioning*** is one form of learning in which an organism "learns" through establishing associations between different events and stimuli. For example, when a neutral stimulus (such as a bell) is paired with an unconditioned stimulus (such as food) which produces some involuntary bodily response all on its own (such as salivating), the neutral stimulus begins to trigger a response by the organism similar (some salivation) to that produced by the unconditioned stimulus. In this way, the organism has "learned" that the neutral stimulus equals something good (just like the unconditioned stimulus).

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Please Watch: LEARNING- HOW TO TRAIN A BRAIN

FIVE COMPONENTS OF CLASSICAL CONDITIONING

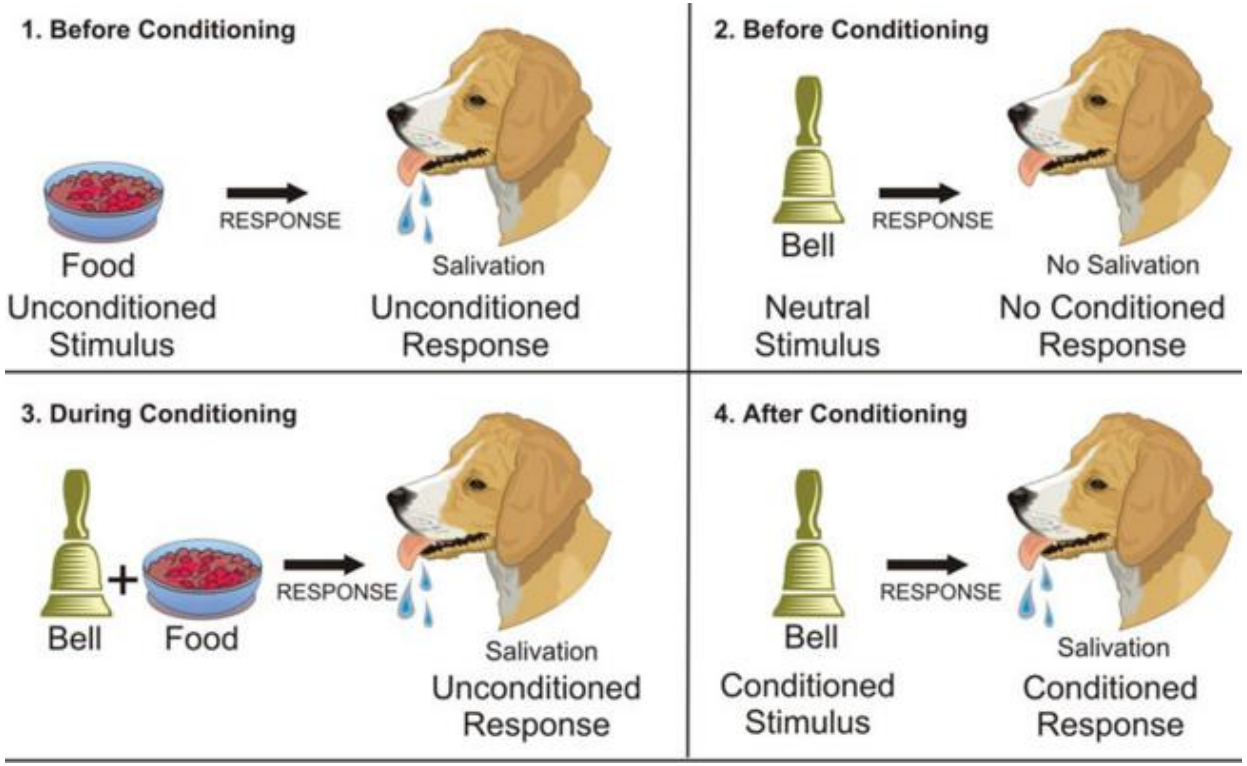
Unconditioned stimulus (UCS)- A natural stimulus that reflexively elicits a response without the need for prior learning. Pavlov used food as the unconditioned stimulus because it produced a naturally occurring salivation reflex.

Remember that the word "condition" means "learned." Thus, an unconditioned stimulus is really an "unlearned stimulus."

Unconditioned response (UCR)- An unlearned response that is elicited by an unconditioned stimulus. In Pavlov's experiments, salivation was the unconditioned response.

Neutral stimulus (NS)- Any stimulus that produces no conditioned response prior to learning. In Pavlov's experiments, a ringing bell was originally a neutral stimulus.

Conditioned stimulus (CS) - The conditioned stimulus was originally the neutral stimulus. When systematically paired with the unconditioned stimulus, the neutral stimulus becomes a conditioned (or learned) stimulus as it gains the power to cause a response. In Pavlov's experiments, the ringing bell became a conditioned stimulus when it began to produce the same salivating response that the food once produced.



Conditioned response (CR) - A conditioned response is a learned response elicited by the conditioned stimulus. Pavlov called the process by which a conditioned stimulus elicits a conditioned response "acquisition." In Pavlov's experiments, he paired the ringing bell with food. Originally a neutral stimulus, the ringing bell became a conditioned stimulus when the dog reacted with a conditioned response by salivating. The dog thus formed a new, learned association between a ringing bell and the food. In Pavlov's experiments, the dog's salivation was both an unconditioned response and a conditioned response.

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Please read: Study 9

John Watson proposed that the process of classical conditioning (based on Pavlov's observations) was able to explain all aspects of human psychology. Everything from speech to emotional responses was simply patterns of stimulus and response. Watson denied completely the existence of the mind or consciousness.

Watson believed that all individual differences in behavior were due to different experiences of learning. He famously said:

"Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take anyone at random and train him to become any type of specialist I might select - doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations and the race of his ancestors" (Watson, 1924, p. 104).

Little Albert Experiment (Phobias)

Ivan Pavlov showed that classical conditioning applied to animals. Did it also apply to humans? In a famous (though ethically dubious) experiment, Watson and Rayner (1920) showed that it did.

Little Albert was a 9-month-old infant who was tested on his reactions to various stimuli. He was shown a white rat, a rabbit, a monkey, and various masks. Albert described as "on the whole stolid and unemotional" showed no fear of any of these stimuli. However, what did startle him and cause him to be afraid as if a hammer was struck against a steel bar behind his head? The sudden loud noise would cause "little Albert to burst into tears.

When Little Albert was just over 11 months old the white rat was presented and seconds later the hammer was struck against the steel bar. This was done 7 times over the next 7 weeks and each time Little Albert burst into tears. By now little Albert only had to see the rat and he immediately showed every sign of fear. He would cry (whether or not the hammer was hit against the steel bar) and he would attempt to crawl away.

In addition, Watson and Rayner found that Albert developed phobias of objects which shared characteristics with the rat; including the family dog, a fur coat, some cotton wool, and a Father's Christmas mask! This process is known as generalization.

Watson and Rayner had shown that classical conditioning could be used to create a phobia. A phobia is an irrational fear, i.e. a fear that is out of proportion to the danger. Over the next few weeks and months, Little Albert was observed and 10 days after conditioning his fear of the rat was much less marked. This dying out of a learned response is called extinction. However, even after a full month it was still evident, that the association could be renewed by repeating the original procedure a few times.

Please read: Study 10

Please Watch: Baby Albert Experiments

Classical conditioning is most efficient when the conditioned stimulus immediately precedes the unconditioned stimulus

Example: Every time someone flushes a toilet in a health club locker room, the nearby shower becomes hot. The sudden stream of hot water causes the person taking a nearby shower to jump back. Over time, the person hears the flush and then automatically jumps back before the water temperature changes.

In this example, the hot water is the unconditioned stimulus, and jumping back is the unconditioned (and thus automatic) response. The toilet flush was originally a neutral stimulus that when paired with the hot water became a conditioned stimulus. The flushing sound thus elicits the conditioned response of jumping back before the hot water appears.

Extinction is the gradual weakening of a conditioned behavior when the conditioned stimulus is not followed by the unconditioned stimulus. For example, in Pavlov's experiments, he presented the ringing bell without the food. As a result, the ringing bell gradually lost its power to elicit the conditioned response of salivation.

Spontaneous recovery is the reappearance of an extinguished conditioned response after a time delay. For example, Pavlov discovered that after a period of time, his dogs began salivating when they heard the sound of the bell. Note that the conditioned response reappeared at a lower intensity.

Spontaneous recovery shows how difficult it can be to eliminate a conditioned response. The noted psychologist Philip Zimbardo points out that "extinction merely suppresses the conditioned response. What actually seems to be happening during extinction is the learning of a competing response not to respond to the conditioned stimulus."

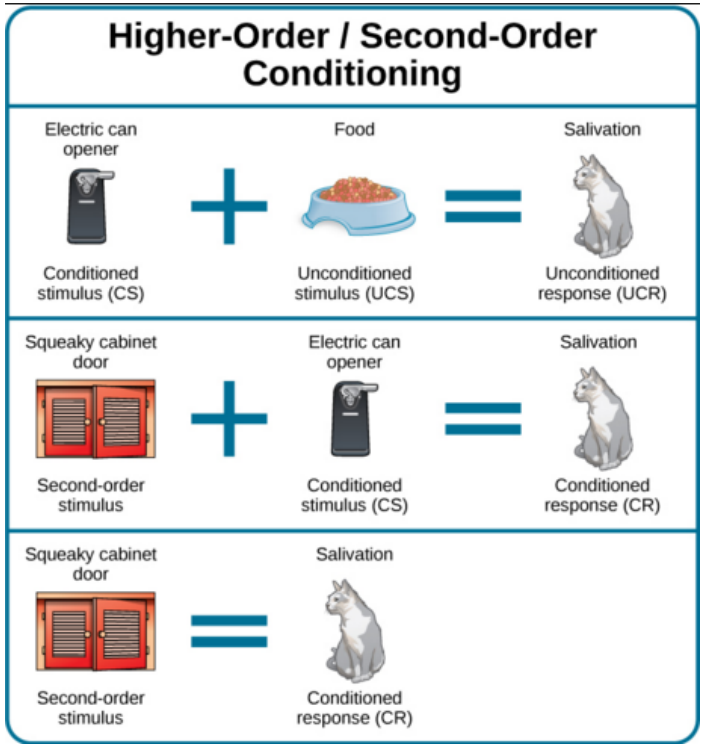
Stimulus generalization occurs when stimuli that are similar to the original stimulus also elicit the conditioned response. It is important to remember that the new stimulus was not paired with the unconditioned stimulus. For example, Pavlov found that a dog conditioned to a low-pitched tone would also respond to a high-pitched tone.

Stimulus discrimination is the ability to distinguish between two similar stimuli. For example, students have learned different responses to the sound of bells in classrooms, cell phones, and front doors. Similarly, gardeners demonstrate stimulus discrimination when they respond differently to weeds and to flowers.

Example: A young boy demonstrates stimulus generalization when he is bitten by a neighbor's boxer and then becomes afraid and runs away when he sees any neighborhood dog. The same boy demonstrates stimulus discrimination if he still enjoys playing with his own family's pet collie.

Higher-order conditioning or ***second-order conditioning*** occurs when a conditioned stimulus from one learning trial is paired with a new unconditioned stimulus. The new unconditioned stimulus becomes a new conditioned stimulus capable of eliciting the conditioned response even though it has never been paired with the unconditioned stimulus.

For example, Pavlov classically conditioned a dog to salivate to the sound of a ticking metronome. He then paired the ticking metronome with a black square. After several pairings of the ticking metronome and the black square, the black square produced salivation even though it had never been directly paired with food.



TASTE AVERSION AND CLASSICAL CONDITIONING -A classically conditioned dislike for and avoidance of a particular food that develops when an organism becomes ill after eating the food.

Many people have experienced vivid examples of taste aversion. For example, suppose you eat a pizza with a particularly spicy topping and then become ill with the flu. You then develop a dislike for the spicy topping and feel nauseated whenever you smell it. In this example, the flu sickness is the unconditioned stimulus and nausea is the unconditioned response. The spicy pizza topping is the conditioned stimulus and the nausea of the new food is the conditioned response.

While anecdotal examples are entertaining, they do not demonstrate a scientific cause-and-effect relationship. Psychologist ***John Garcia*** (b. 1917) conducted a series of controlled experiments to demonstrate that taste aversions could be produced in laboratory rats. In his basic experimental condition, Garcia first allowed rats to drink saccharin-flavored water (the neutral stimulus). A few hours later, he injected the rats with a drug (the unconditioned stimulus) that produced gastrointestinal distress (the unconditioned response). After recovering from the illness, the rats refused to drink the flavored water. Garcia concluded that the rats developed a taste aversion to the saccharin-flavored water.

Test Tip

John Garcia's finding that animals develop an aversion to tastes associated with sickness has generated a number of multiple-choice questions. Be sure that you are familiar with Garcia's research findings and how they challenge the basic principles of classical conditioning.

Test Tip

Garcia's experiments challenged two basic principles of classical conditioning. First, the conditioning only required a single pairing. And second, instead of being separated by a few seconds, Garcia separated the two stimuli by several hours. Garcia's research thus demonstrated that there are important biological constraints on conditioning.

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I can predict the effects of operant conditioning (e.g., positive reinforcement, negative reinforcement, punishment).

Classical conditioning focuses on existing reflexive behaviors that are automatically elicited by a specific stimulus. Learning, however, involves new behaviors or voluntary actions that classical conditioning cannot explain.

Animal behavior fascinated ***Edward L. Thorndike***. His studies of baby chicks and cats were the first systematic investigations of animal learning. Thorndike focused on how voluntary behaviors are influenced by their consequences. In his famous ***law of effect***, Thorndike postulated that responses that lead to satisfying outcomes are more likely to be repeated. Similarly, responses followed by unpleasant outcomes are less likely to be repeated.

B.F. Skinner was a renowned behaviorist who believed that psychologists should focus on observable behavior that could be objectively measured and verified. During his long career, Skinner formulated the principles of ***operant conditioning***. Skinner defined the term "operant" as any "active behavior that operates upon the environment to generate consequences." Operant conditioning is a learning process in which behavior is shaped and maintained by consequences (rewards or punishments) that follow a response. In contrast, in classical conditioning behavior is controlled by the stimuli that precede a response.

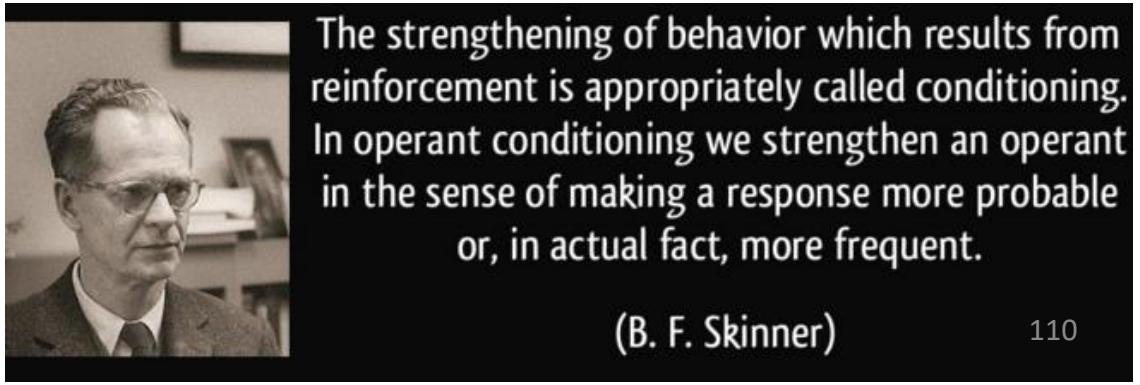
Reinforcement occurs when a stimulus (the reinforcement) follows an active behavior or response. The reinforcement increases the probability that the behavior or response will be repeated.

Positive ***reinforcement*** is s situation in which a behavior or response is followed by the addition of a reinforcing stimulus. The stimulus increases the probability that the response will occur again. It is very important to understand that positive does not mean "good" or "desirable." Instead, Skinner used a positive like a plus sign (+) to indicate that a response is strengthened because something is added.

For example, your performance in the school play is flawless (the operant). Your drama coach applauds and exclaims "Bravo!" (the reinforcing stimulus).
You make a special effort to help customers find the electronic products that will work best for them (the operant). Your boss gives you a raise.

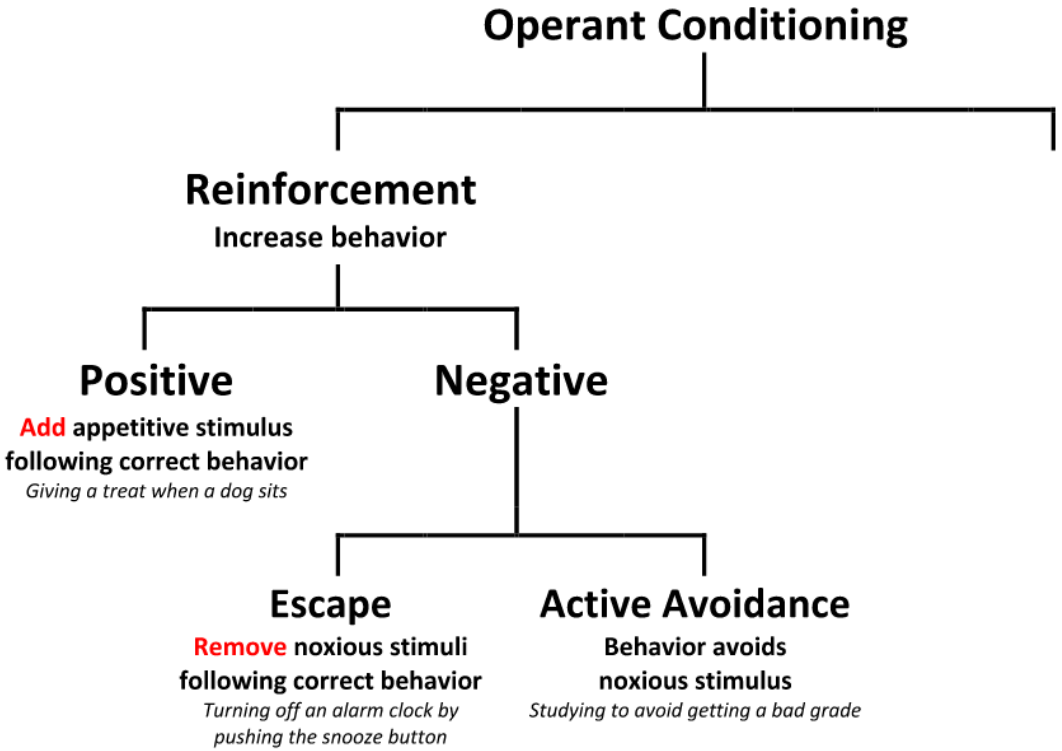
More Examples of Positive Reinforcement:

Giving a child a compliment or candy for a job well done.
Getting paid for a completed task.
Watching your favorite TV show after doing all your homework.
Dolphin gets a fish for doing a trick.
Dog gets a treat for sitting, laying, rolling over.
Get a candy bar for putting money in the machine.



Negative ***reinforcement*** is a situation in which a behavior or response is followed by the removal of an adverse stimulus. It is very important to understand that negative does not mean "bad" or "undesirable." Instead, Skinner used negative like a minus sign (-) to indicate that a response is strengthened because something is subtracted or removed. Negative reinforcement typically enables you to either escape an existing aversive stimulus or avoid an aversive stimulus before it occurs.

For example, you take out the garbage (the operant) to avoid your mother's repeated nagging (the aversive stimulus). You put on sunscreen (the operant) to avoid getting sunburned (the aversive stimulus).



Test Tip

The AP Psychology Development Committee includes experienced classroom teachers who know that students easily understand positive reinforcement but have difficulty grasping negative reinforcement. As a result, AP Psychology exams usually have multiple-choice questions devoted to negative reinforcement. Remember, negative reinforcement increases the likelihood of a behavior by enabling you to either escape an existing aversive stimulus or avoid an aversive stimulus before it occurs.

Test Tip

THE PREMACK PRINCIPLE

Named after psychologist David Premack, the Premack principle states that the opportunity to engage in a preferred activity can be used to reinforce a less-preferred activity.

For example, You enjoy playing video games far more than studying for the SAT or ACT. Knowing this, you tie the less-preferred activity (studying for the SAT or ACT) to your preferred activity (playing video games).

You enjoy eating ice cream for dessert far more than eating vegetables. Knowing this, your mother ties the less-desired activity (eating vegetables) to your preferred activity (eating ice cream).

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I can predict how practice, schedules of reinforcement, and motivation will influence quality of learning.

TYPES OF REINFORCERS

Primary reinforcement is a reinforcement that is naturally reinforcing for a given species. Food, water, shelter, and sexual contact are all primary reinforcements.

Secondary reinforcement is a reinforcement that gains its effectiveness by a learned association with primary reinforcers. Money is the most widely used secondary reinforcement in human societies.

A ***Token economy*** is a therapeutic method, based on operant conditioning, by which individuals are rewarded with tokens that act as secondary reinforcers. The tokens can be redeemed for rewards and privileges. Elementary teachers often use token economies as a reinforcement strategy. The token economy enables a teacher to reinforce classroom rules without having to know a specific reinforcer for each student.

CONTINUOUS REINFORCEMENT AND SHAPING

Continuous reinforcement is a reinforcement schedule in which all correct responses are reinforced. Responses extinguish faster when they are learned through a continuous reinforcement schedule.

Shaping refers to the technique of strengthening a behavior by reinforcing successive approximations of behavior until the entire correct routine is displayed. Shaping is extensively used by athletic coaches and animal trainers. Shaping reinforces the steps used to reach the desired behavior. For example, how might a researcher get a rat to push on a lever? First, the rat might be reinforced for going to the side of the box with the lever. Then we might reinforce the rat for touching the lever with any part of its body. By rewarding approximations of the desired behavior, we increase the likelihood that the rat will stumble upon the behavior we want.

INTERMITTENT REINFORCEMENT

Intermittent reinforcement refers to the rewarding of some, but not all, correct responses.

Advantages: Intermittent reinforcement is the most efficient way to maintain behaviors that have already been learned. Behaviors learned through intermittent reinforcement are very resistant to extinction (people think one more time and it will be reinforced – almost like an addiction). As a result, gambling is a very difficult habit to extinguish.

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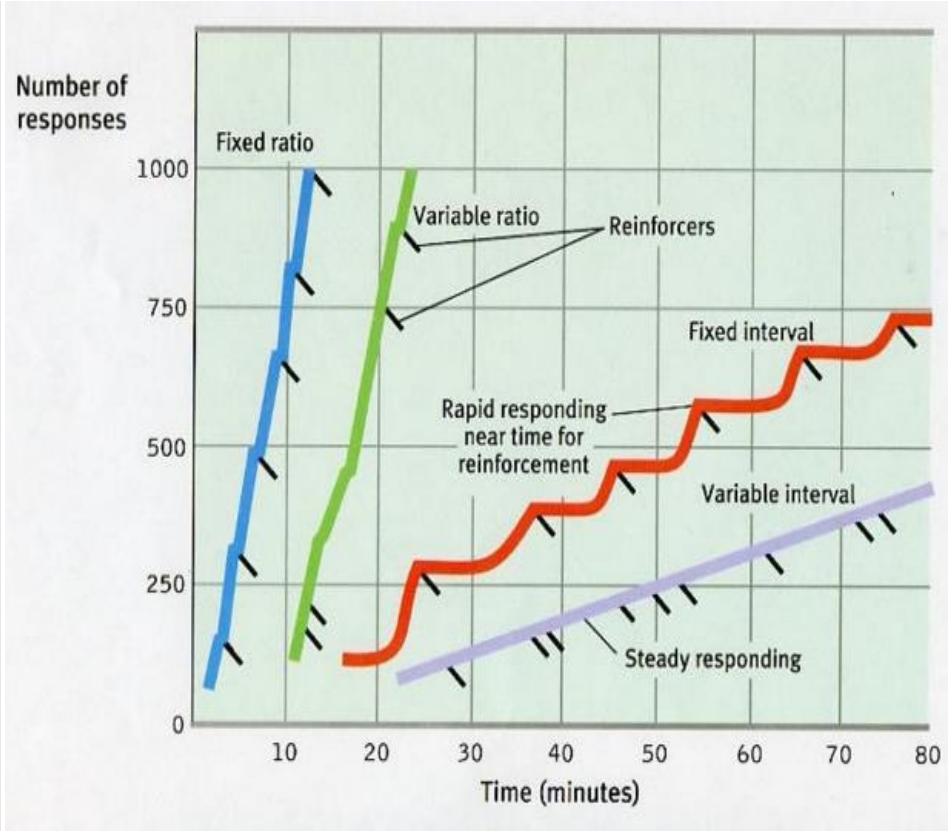
I can interpret graphs that exhibit the results of learning experiments

RATIO SCHEDULES OF REINFORCEMENT - Ratio schedules are based upon the number of responses (behavior needed) before reinforcement

Fixed ratio (FR) schedules	*Variable ratio (VR) schedules*
Reinforcement occurs after a predetermined set of responses. An employer who pays workers for every three baskets of fruit they pick is using a fixed ratio schedule. Fixed ratio schedules produce high response rates. However, there is a brief drop off just after reinforcement. If a rat is on a FR-5 schedule, it will be rewarded after the fifth bar press.	Reinforcement is unpredictable because the ratio varies. Casino owners use slot machines designed to operate on a variable ratio schedule. Variable ratio schedules produce high response rates and are very resistant to extinction. A rat on a VR-5 schedule might be rewarded after the second press, the ninth press, the third press, the sixth press, and so on; the average number of presses required to receive a reward will be five.

INTERVAL SCHEDULES OF REINFORCEMENT- Interval schedules are based on responses made within a certain time period.

Fixed interval (FI) schedules	*Variable interval (VI) schedules*
Reinforcement occurs after a predetermined time has elapsed. Employers who pay their workers every two weeks are using a fixed interval schedule of reinforcement. Teachers who give a test every two weeks are also using a fixed interval schedule. Fixed interval schedules typically produce moderate response rates followed by a flurry of activity near the end of each interval. In an FI-3 minute schedule, for instance, the rat will be reinforced for the first bar press that occurs after three minutes have passed.	Reinforcement occurs unpredictably since the time interval varies. Teachers who give pop quizzes are using a variable interval schedule. Variable interval schedules produce low but steady response rates because respondents cannot predict when they will be rewarded A variable-interval (VI) schedule varies the amount of time required to elapse before a response will result in reinforcement. In a VI-3 minute schedule, the rat will be reinforced for the first response made after an average time of three minutes.



Variable schedules are more resistant to extinction than fixed schedules. Once an animal becomes accustomed to a fixed schedule (being reinforced after x amount of time or y number of responses), a break in the pattern will quickly lead to extinction. However, if the reinforcement schedule has been variable, noticing a break in the pattern is much more difficult. In effect, variable schedules encourage continued responding on the chance that just one more response is needed to get the reward. Additionally, Variable schedules are more resistant to extinction than fixed schedules, and all partial reinforcement schedules are more resistant to extinction than continuous reinforcement.

Sometimes one is more concerned with encouraging high rates of responding rather than resistance to extinction. For instance, someone who employs factory workers to make widgets wants the workers to produce as many widgets as possible. Ratio schedules promote higher rates of responding than interval schedules. It makes sense that when people are reinforced based on the number of responses they make, they will make more responses than if the passage of time is also a necessary precondition for reinforcement as it is in interval schedules. Factory owners historically paid for piece work; that is, the more workers produced, the more they were paid. Ratio schedules typically result in higher response rates than interval schedules.

Why do we do the things we do? What is it that drives our behaviors? Psychologists have proposed some different ways of thinking about motivation, including one method that involves looking at whether motivation arises from outside (extrinsic) or inside (intrinsic) the individual.

Extrinsic Motivation

Extrinsic motivation occurs when we are motivated to perform a behavior or engage in an activity to earn a reward or avoid punishment.
Examples of behaviors that are the result of extrinsic motivation include:

Studying because you want to get a good grade
Cleaning your room to avoid being reprimanded by your parents
Participating in a sport to win awards
Competing in a contest to win a scholarship
In each of these examples, the behavior is motivated by a desire to gain a reward or avoid an adverse outcome.

Intrinsic Motivation

Intrinsic motivation involves engaging in a behavior because it is personally rewarding; essentially, performing an activity for its own sake rather than the desire for some external reward.
Examples of actions that are the result of intrinsic motivation include:

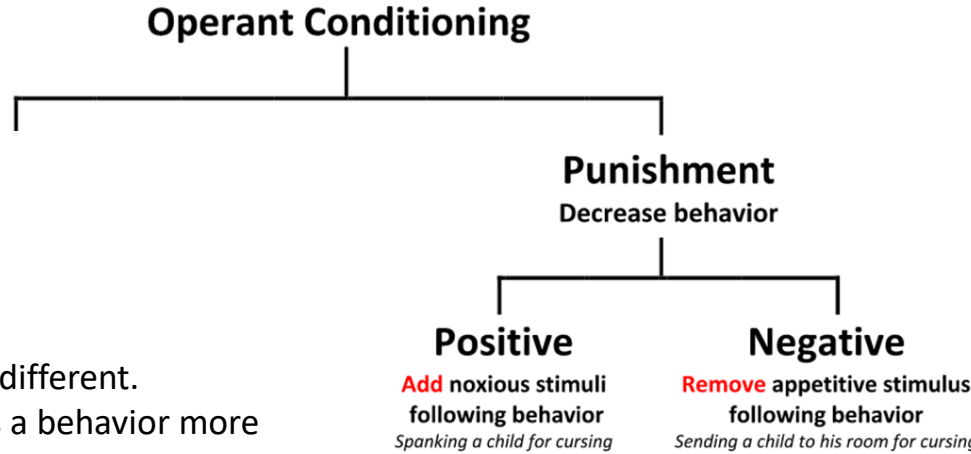
Participating in a sport because you find the activity enjoyable
Solving a word puzzle because you find the challenge fun and exciting
Playing a game because you find it exciting
In each of these instances, the person's behavior is motivated by an internal desire to participate in an activity for its own sake.

A major concern in psychology and education is that rewards decrease intrinsic motivation to perform activities. Rewards can have a big impact on motivation, including the motivation to learn. The ***over-justification effect*** occurs when an expected external incentive such as money or prizes decreases a person's intrinsic motivation to perform a task. The overall effect of offering a reward for a previously unrewarded activity is a shift to extrinsic motivation and the undermining of pre-existing intrinsic motivation. Once rewards are no longer offered, interest in the activity is lost; prior intrinsic motivation does not return, and extrinsic rewards must be continuously offered as motivation to sustain the activity

"A person's intrinsic enjoyment of an activity provides sufficient justification for their behavior," explains author Richard A. Griggs in his book "Psychology: A Concise Introduction." "With the addition of extrinsic reinforcement, the person may perceive the task as over justified and then attempt to understand their true motivation (extrinsic versus intrinsic) for engaging in the activity."

I can predict the effects of operant conditioning (e.g., positive reinforcement, negative reinforcement, punishment).

Punishment is a process in which a behavior is followed by an aversive consequence that decreases the likelihood of the behavior being repeated. Do not confuse punishment and reinforcement. Punishment decreases the likelihood of a behavior being repeated, while reinforcement increases the likelihood that the behavior will be repeated.



Positive Punishment is the application or addition of an aversive stimulus after a response.
Examples:
Yelling "No!" at a dog jumping up on a person (adds scold to reduce behavior)
Spanking a child
A speeding ticket for speeding.

Negative punishment is the removal or subtraction of a reinforcing stimulus. Negative punishment and negative reinforcement are easily confused. However, it is important to keep in mind that they are very different. Negative punishment makes a behavior less likely to happen. In contrast, negative reinforcement makes a behavior more likely to happen.

Examples:
A child has a toy taken away for fighting with his sister.
The teen is grounded for misbehavior.
One person in a relationship stops talking to the other in response to a behavior.

DRAWBACKS OF PUNISHMENT

Punishment can produce undesirable results such as fear, hostility, and aggression.
Punishment often produces only a temporary change in behavior.
Punishment can produce a behavior pattern called ***learned helplessness***. This occurs when a learner feels that it is impossible to escape punishment. This leads to a passive feeling of hopelessness that may lead to depression. For example, a A student who is doing poorly in a difficult course may express a sense of learned helplessness by saying, "No matter what I do I'm going to fail."

EFFECTIVE USES OF PUNISHMENT

Punishment should be delivered immediately after the offensive behavior.
Punishment should be certain.
Punishment should be limited and sufficient so that it "fits the crime."
Punishment should focus on the behavior, not the character, of the offender.

Please read: Study 11

COMPARING CLASSICAL CONDITIONING AND OPERANT CONDITIONING

PIONEERS

Classical conditioning— Ivan Pavlov and John B. Watson

Operant conditioning— Edward Thorndike and B.F. Skinner

TIMING OF STIMULI

Classical conditioning- stimuli precede the response

Operant conditioning— stimuli follow the response

TYPES OF BEHAVIOR

Classical conditioning— involuntary responses

Operant conditioning— voluntary responses

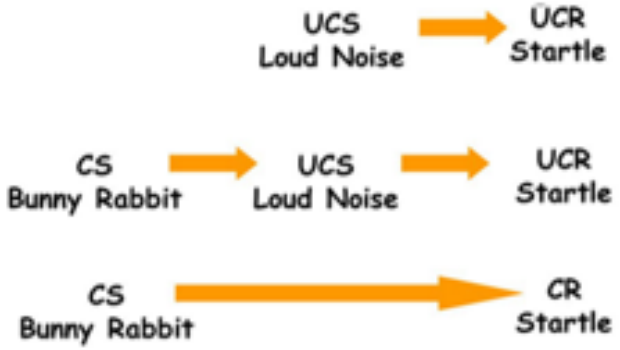
USE OF REWARDS AND PUNISHMENTS

Classical conditioning—does not use rewards and punishments

Operant conditioning— based upon rewards and punishments

Model

Classical Conditioning



Operant Conditioning

	Punishment (decreasing behavior)	Reinforcement (increasing behavior)
Positive (adding)	Adding something to Decrease behavior	Adding something to increase behavior
Negative (subtracting)	subtracting something to Decrease behavior	subtracting something to increase behavior

I can provide examples of how biological constraints create learning predispositions.

Classical Conditioning principles, as we know, are constrained by biological predispositions, so that learning some associations is easier than learning others.

Learning is adaptive: Each species learns behaviors that aid its survival.

Biological constraints also place limits on operant conditioning. Training that attempts to override biological constraints will probably not endure because animals will revert to predisposed patterns.

For instance, although some of the great apes (Gorillas and Chimps) can perform many physical tasks and even learn how to communicate through sign language, it appears that they lack the mental organization or physical means to learn to read or speak.

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I can describe the essential characteristics of insight learning, latent learning, and social learning.

The Contingency Model of Classical Conditioning

The Pavlovian model of classical conditioning is known as the contiguity model because it postulates that the more times two things are paired, the greater the learning that will take place. Contiguity (togetherness) determines the strength of the response. ***Robert Rescorla*** revised the Pavlovian model to take into account a more complex set of circumstances.

Suppose that dog 1, Rocco, is presented with a bell paired with food ten times in a row. Dog 2, Sparky, also experiences ten pairings of bell and food. However, intermixed with those ten trials are five trials in which food is presented without the bell and five more trials in which the bell is rung but no food is presented. Once these training periods are over, which dog will have a stronger salivation response to the bell? Intuitively, you will probably see that Rocco will, even though a model based purely on contiguity would hypothesize that the two dogs would respond the same since each has experienced ten pairings of bell and food.

Rescorla's model is known as the ***contingency model*** of classical conditioning and rests upon a cognitive view of classical conditioning. A is contingent upon B when A depends upon B and vice versa. In such a case, the presence of one event reliably predicts the presence of the other. In Rocco's case, the food is contingent upon the presentation of the bell; one does not appear without the other. In Sparky's experience, sometimes the bell rings and no snacks are served, other times snacks appear without the annoying bell, and sometimes they appear together. Sparky learns less because, in her case, the relationship between the CS and the US is not as clear. The difference in Rocco's and Sparky's responses strongly suggests that their expectations or thoughts influence their learning.
In addition to operant and classical conditioning, cognitive theorists have described several additional kinds of learning. These include observational learning, insight learning, latent learning, and abstract learning.

Pavlov's contiguity model of classical conditioning holds that the strength of an association between two events is closely linked to the number of times they have been paired in time. Rescorla's contingency model of classical conditioning reflects more of a cognitive spin, positing that it is necessary for one event to reliably predict another for a strong association between the two to result.

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Observational Learning (social learning)

As you are no doubt aware, people and animals learn many things simply by observing others. Watching children play house, for example, gives us an indication of all they have learned from watching their families and the families of others. Such observational learning is also known as modeling and was studied a great deal by ***Albert Bandura*** in formulating his social-learning theory. This type of learning is said to be species-specific; it only occurs between members of the same species.

Test Tip

Observational or social learning typically generates one multiple-choice question on each AP Psychology exam. However, in recent years observational learning has played a significant role in free-response questions. For example, both the 2002 and 2008 exams asked students to apply principles of observational learning to everyday situations.

Test Tip

Modeling has two basic components: observation and imitation. By watching his older sister, a young boy may learn how to hit a baseball. First, he observes her playing baseball with the neighborhood children in his backyard. Next, he picks up a bat and tries to imitate her behavior. Observational learning has a clear cognitive component in that a mental representation of the observed behavior must exist to enable the person or animal to imitate it.

A significant body of research indicates that children learn violent behaviors from watching violent television programs and violent adult models. Bandura, Ross, and Ross's (1963) classic Bobo doll experiment illustrated this connection. Children were exposed to adults who modeled either aggressive or nonaggressive play with, among other things, an inflatable Bobo doll that would bounce back up after being hit. Later, given the chance to play alone in a room full of toys including poor Bobo, the children who had witnessed the aggressive adult models exhibited strikingly similar aggressive behavior to that which they had observed. The children in the control group were much less likely to aggress against Bobo, particularly in the ways modeled by the adults in the experimental condition.

Please Read: **Study 12**

Please watch: **LEARNING- THE BOBO BEATDOWN**

Insight Learning

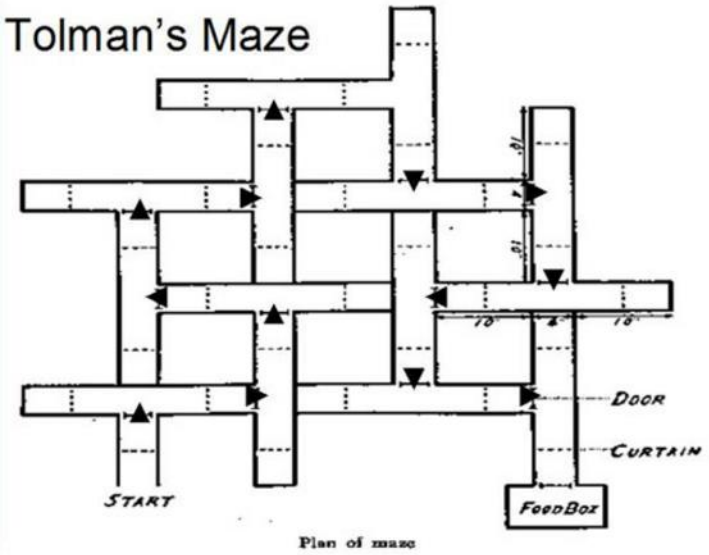
Wolfgang Köhler is well known for his studies of insight learning in chimpanzees. ***Insight learning*** occurs when one suddenly realizes how to solve a problem. You have probably had the experience of skipping over a problem on a test only to realize later, in an instant, how to solve it. Köhler argued that learning often happened in this sudden way due to insight rather than because of the gradual strengthening of the S-R connection suggested by the behaviorists.

In a pioneering series of experiments, Kohler suspended bananas just outside the reach of a caged chimpanzee named Sultan. Unlike Skinner's rats and pigeons, Sultan did not solve the problem through trial and error. Instead, he studied the problem and in a flash of insight used a stick to knock down the fruit. Kohler called this sudden understanding of a problem "insight learning." It is important to note that Sultan's behavior cannot be explained by either classical or operant conditioning.

Latent learning was studied extensively by ***Edward Tolman***. Latent means hidden, and latent learning is learning that becomes obvious only once reinforcement is given for demonstrating it. Behaviorists had asserted that learning is evidenced by gradual changes in behavior, but Tolman conducted a famous experiment illustrating that sometimes learning occurs but is not immediately evidenced.

Tolman had three groups of rats run through a maze on a series of trials. One group got a reward each time it completed the maze, and the performance of these rats improved steadily over the trials. Another group of rats never got a reward, and their performance improved only slightly over the course of the trials. A third group of rats was not rewarded during the first half of the trials but was given a reward during the second half of the trials. Not surprisingly, during the first half of the trials, this group's performance was very similar to the group that never got a reward. The interesting finding, however, was that the third group's performance improved dramatically and suddenly once it began to be rewarded for finishing the maze.

Tolman reasoned that these rats must have learned their way around the maze during the first set of trials. Their performance did not improve because they had no reason to run the maze quickly. Tolman credited their dramatic improvement in maze-running time to latent learning. He suggested they had made a mental representation, or ***cognitive map***, of the maze during the first half of the trials and evidenced this knowledge once it would earn them a reward.



Please Read: Study 15

Abstract learning involves understanding concepts such as tree or same rather than learning simply to press a bar or peck a disk in order to secure a reward. Some researchers have shown that animals in Skinner boxes seem to be able to understand such concepts. For instance, pigeons have learned to peck pictures they had never seen before if those pictures were of chairs. In other studies, pigeons have been shown a particular shape (for example, square or triangle) and rewarded in one series of trials when they picked the same shape out of two choices and in another set of trials when they pecked at the different shapes. Such studies suggest that pigeons can understand concepts and are not simply forming S-R connections, as Thorndike and Skinner had argued.

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I can apply learning principles to explain emotional learning, taste aversion, superstitious behavior, and learned helplessness.

Concept	Learning Principle applied
Conditioned ***taste aversion*** occurs when an animal associates the taste of a certain food with symptoms caused by a toxic, spoiled, or poisonous substance. Generally, taste aversion is developed after ingestion of food that causes nausea, sickness, or vomiting. The ability to develop a taste aversion is considered an adaptive trait or survival mechanism that trains the body to avoid poisonous substances (e.g., poisonous berries) before they can cause harm. The association reduces the probability of consuming the same substance (or something that tastes similar) in the future, thus avoiding further poisoning.	It is an example of classical or "Pavlovian" conditioning.
Superstitious behavior derives from a unjustified belief in supernatural causation leading to certain consequences of an action or event, or a practice based on such a belief. Example: I need to wear my luck jersey during the big games. It brings the team luck	It is an examples of operant or instrumental conditioning
Social and emotional learning (SEL) is the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions. SEL will lead to an increase of ***prosocial behavior*** such as altruism.	It is an of observational social learning
Learned helplessness, in psychology, a mental state in which an organism forced to bear aversive stimuli, or stimuli that are painful or otherwise unpleasant, becomes unable or unwilling to avoid subsequent encounters with those stimuli, even if they are "escapable," presumably because it has learned that it cannot control the situation. ***E.P. Seligman*** at the University of Pennsylvania in the late 1960s and '70s. While conducting experimental research on classical conditioning,	It is an example of classical or "Pavlovian" conditioning. **Please read: Study 31**

Locus of control refers to the extent to which people believe they have power over events in their lives. A person with an ***internal locus*** of control believes that he or she can influence events and their outcomes, while someone with an ***external locus*** generally believe that their successes or failures result from external factors beyond their control, such as luck, fate, circumstance, injustice, bias, or teachers who are unfair, prejudiced, or unskilled.

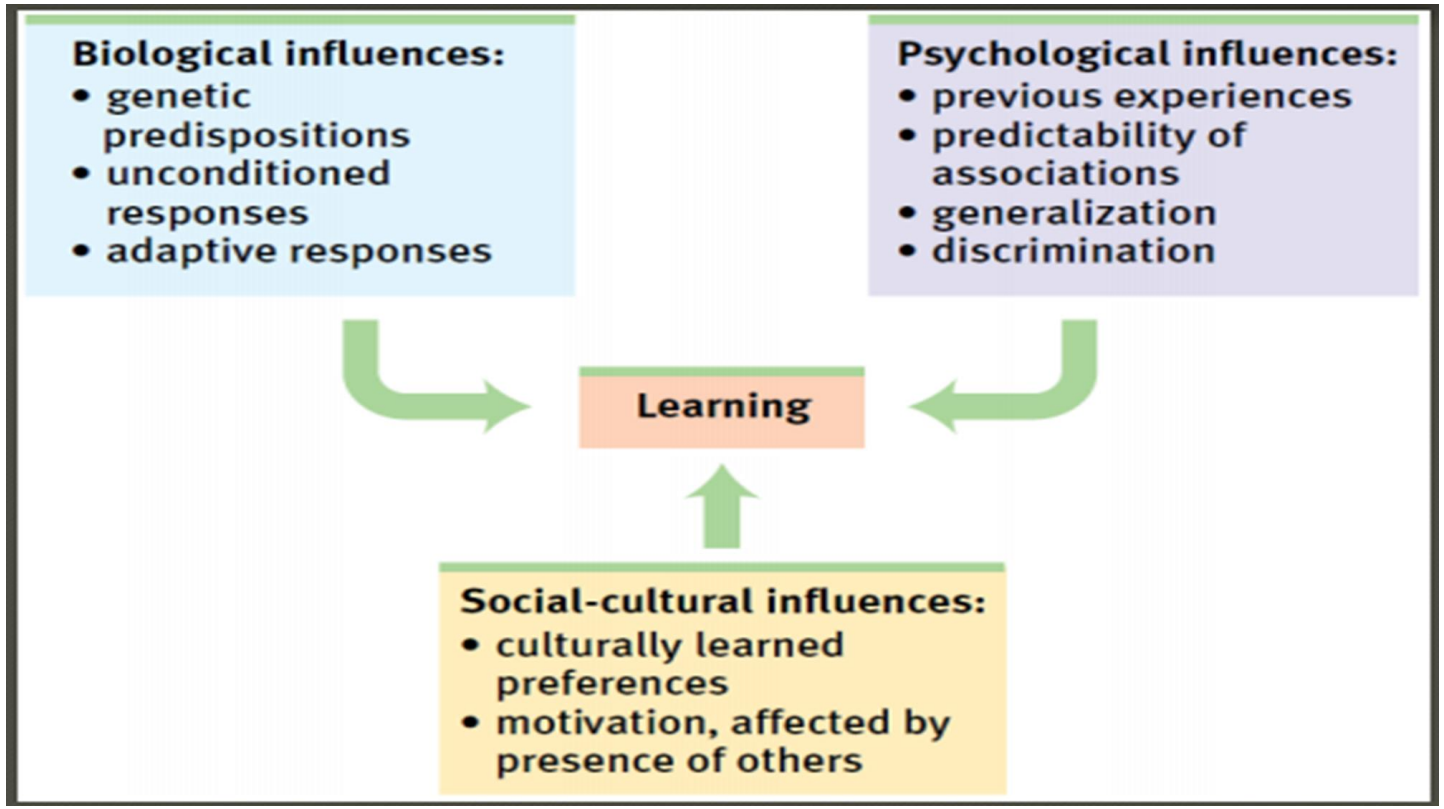
This concept was brought to light in the 1950's by Julian Rotter. The underlying question regarding the locus of control is this…do I control my life or does something else (like a God) control it? This simple idea has profound significance as it influences peoples' beliefs very strongly. Do you believe in God? Are you an agnostic? Why? Do I just have good luck? If I make all the right decisions does that mean I can make my life be exactly how I envision it? These are all questions that might arise from that simple premise. It has been demonstrated that people with an internal locus of control feel less anxiety and stress.

I can suggest how behavior modification, biofeedback, coping strategies, and self control can be used to address behavioral problems.

Concept	How it can be used to address behavioral problems
Biofeedback is the process of gaining greater awareness of many physiological functions primarily using instruments that provide information on the activity of those same systems, with a goal of being able to manipulate them at will. Some of the processes that can be controlled include brainwaves, muscle tone, skin conductance, heart rate, and pain perception. 	Biofeedback may be used to improve health, performance, and the physiological changes that often occur in conjunction with changes to thoughts, emotions, and behavior. Eventually, these changes may be maintained without the use of extra equipment, for no equipment is necessarily required to practice biofeedback. Biofeedback is effective for the treatment of headaches and migraines
Problems in life are unavoidable and we need to learn how to cope. ***Coping*** refers to alleviating stress using emotional, cognitive, or behavioral methods. ***Problem-focused coping*** is when we deal with stress head-on. We attempt to change the stressor or the way we interact with it. This gives us a sense of control over the situation. When we feel that we cannot change the situation we will use **emotion-focused** coping which is our attempt to alleviate stress by avoiding or ignoring the stressor and instead attending to emotional needs related to one's stress reaction.	**Problem-focused coping** strategies help us tackle the problem head-on. Some strategies include discussion, time management, problem-solving, and gaining instructional support. In general problem-focused coping is best, as it removes the stressor, and deals with the root cause of the problem, providing a long-term solution. However, it is not always possible to use problem-focused strategies. For example, when someone dies, problem-focused strategies may not be very helpful for the bereaved. Dealing with the feeling of loss requires emotion-focused coping. **Emotional-focused coping** may help us when we feel the situation is beyond our control. Examples include distractions, praying, speaking, or writing about the event. Depending on the situation adaptive or productive or they can be maladaptive.
Self-control separates us from our ancient ancestors and the rest of the animal kingdom, thanks to our large prefrontal cortex. It is the ability to subdue our impulses in order to achieve longer-term goals. Rather than responding to immediate impulses, we can plan, evaluate alternative actions, and, often enough, avoid doing things we'll later regret. The ability to exert self-control is typically called willpower. It is what allows us to direct our attention, and it underlies all kinds of achievement.	There is significant debate in science as to whether or not willpower is a finite resource. Studies demonstrate that exercising willpower makes heavy demands on mental energy, notably on reserves of glucose, the brain's preferred fuel, creating ego depletion. It's one reason we're more apt to reach for that chocolate chip cookie when we're feeling stressed than when we're feeling on top of the world. Recently, scientists have failed to replicate some of the studies underlying the concept of ego depletion, and more research is underway.

Apply the information from the unit to the following learning concepts in the classroom

1. Growth mindset
2. Prior knowledge
3. Limits of stage theories
4. Facilitating context
5. Practice
6. Feedback
7. Self-regulation
8. Creativity
9. Intrinsic motivation
10. Mastery goals
11. Teacher expectations
12. Goal setting
13. Social contexts
14. Interpersonal relationships
15. Well-being
16. Classroom conduct
17. Expectations and support
18. Formative and summative assessment
19. Assessment development
20. Assessment evaluation



Overlearning

[JOHN GABRIELI M.I.T. LECTURE 9: LEARNING]

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Cognition

In this unit students learn how humans convert sensory input into kinds of information. They examine how humans learn, remember, and retrieve information. This part of the course also addresses problem solving, language, and creativity.

Myers Modules 31-36 pages 316- 388

8 to 10 % of AP Course

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Objectives

- ☐ Compare and contrast various cognitive processes: effortful versus automatic processing; deep versus shallow processing; focused versus divided attention.
- ☐ Describe and differentiate psychological and physiological systems of memory (e.g., short-term memory, procedural memory).
- ☐ Outline the principles that underlie effective encoding, storage, and construction of memories.
- ☐ Describe strategies for memory improvement.
- ☐ Synthesize how biological, cognitive, and cultural factors converge to facilitate acquisition, development, and use of language.
- ☐ Identify problem-solving strategies as well as factors that influence their effectiveness.
- ☐ List the characteristics of creative thought and creative thinkers.
- ☐ Identify key contributors in cognitive psychology (e.g., Noam Chomsky, Hermann Ebbinghaus, Wolfgang Köhler, Elizabeth Loftus, George A. Miller, Daniel Kahneman, Amos Tversky).

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Define and Apply the following the following Vocab and/or concepts

memory
encoding
storage
retrieval
parallel processing
sensory memory
short-term memory
long-term memory
working memory
explicit memory
effortful processing
automatic processing
implicit memory
iconic memory
echoic memory
chunking
mnemonics
spacing effect
testing effect
shallow processing
deep processing
hippocampus
flashbulb memory

long-term potentiation (LTP)
recall
recognition
relearning
priming
mood-congruent memory
serial position effect
anterograde amnesia
retrograde amnesia
proactive interference
retroactive interference
repression
misinformation effect
source amnesia
déjà vu
cognition
concept
prototype
creativity
convergent thinking
divergent thinking
algorithm

heuristic
insight
confirmation bias
mental set
intuition
representativeness heuristic
availability heuristic
overconfidence
belief perseverance
framing
language
phoneme
morpheme
grammar
babbling stage
one-word stage
two-word stage
telegraphic speech
aphasia
Broca's area
Wernicke's area
linguistic determinism

Key People

Noam Chomsky
Hermann Ebbinghaus
Wolfgang Köhler
Elizabeth Loftus
George A. Miller
Daniel Kahneman
Amos Tversky
Benjamin Lee Whorf

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Outline the principles that underlie effective encoding, storage, and construction of memories.

The central question of memory research is: What causes us to remember what we remember and to forget what we forget? ***Memory*** is defined by researchers as any indication that learning has persisted over time. You might remember what you received for your 5th birthday but forget your appointment with the school counselor. What are the processes that determine which events stick in our memories? Why and how do we lose information from memory? How accurate are our memories? Researchers do not have the final answers to any of these questions. However, models and principles of memory have emerged from the research that gives us insight into how we remember.

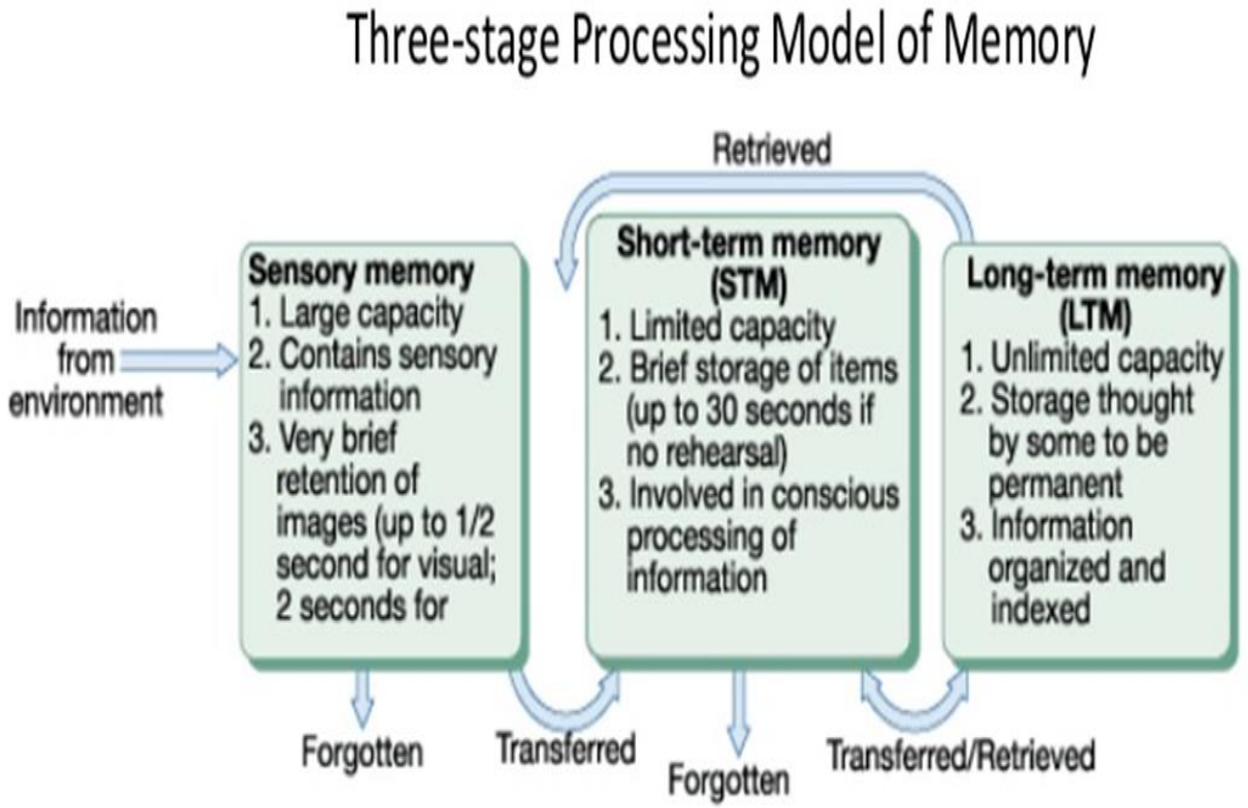
To remember any event, we must

1. Acquire information into the memory system through a process called ***Encoding***
2. Retain information over time in a process called ***Storage***
3. Recover information from memory storage in a process called ***Retrieval***

Several different models, or explanations, of how memory works have emerged from memory research. We will review two of the most important models: the three-box/information-processing model and the levels of processing model. Neither model is perfect. They describe how memory works in different ways and can describe some memory experiences better than others.

Three-Box/Information-Processing Model

The principle model of memory is the three-box model, also called the ***Information-processing model***. This model proposes the three stages that information passes through before it is stored. External events are first processed by our sensory memory. Then some information is encoded into our short-term (or working) memory. Some of that information is then encoded into long-term memory.



Helpful outside site

https://human-memory.net/

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Describe and differentiate psychological and physiological systems of memory (e.g., short-term memory, procedural memory).

Describe strategies for memory improvement.

SENSORY MEMORY

The first stop for external events is ***sensory memory***. It is a split-second holding tank for incoming sensory information. All the information your senses are processing right now is held in sensory memory for a very short period (less than a second). Researcher George Sperling demonstrated this in a series of experiments in which he flashed a grid of nine letters, three rows, and three columns, to participants for 1/20th of a second. The participants in the study were directed to recall either the top, middle, or bottom row immediately after the grid was flashed at them. (Sperling used a high, medium, or low tone to indicate which row they should recall.) The participants could recall any of the three rows perfectly. This experiment demonstrated that the entire grid must be held in sensory memory for a split second. This type of sensory memory is called ***iconic memory***, a split-second perfect photograph of a scene. Other experiments demonstrate the existence of ***echoic memory***, an equally perfect brief (3–4 second) memory for sounds.

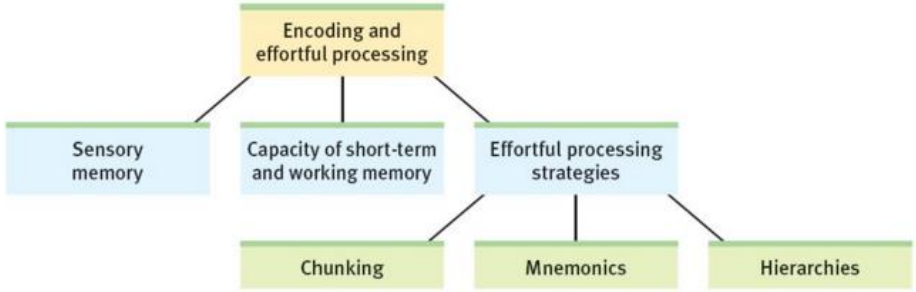
Most of the information in sensory memory is not encoded, however. Only some of it is encoded, or stored, in *short-term memory*. Events are encoded as visual codes (a visual image), acoustic codes (a series of sounds), or semantic codes (a sense of the meaning of the event). What determines which sensory messages get encoded? ***Selective attention***. We encode what we are attending to or what is important to us.

SHORT-TERM/WORKING MEMORY

Short-term memory is also called ***working memory*** because these are memories we are currently working with and are aware of in our consciousness. Everything you are thinking at the current moment is held in your short-term or working memory. Short-term memories are also temporary. If we do nothing with them, they usually fade in 10 to 30 seconds. Our capacity in short-term memory is limited on average to around seven items (this average was established in a series of famous experiments by *George Miller* titled “The Magical Number Seven, Plus or Minus Two”), but this limit can be expanded through a process called ***chunking***. If you want to remember a grocery list with 15 items on it, you should chunk, or group, the items into no more than seven groups. Most ***mnemonic devices***, and memory aids, are examples of chunking. If you memorized the names of the planets by remembering the sentence “My very excellent mother just served us nine pizzas,” you chunked the names of the planets into the first letters of the words in one sentence.

Another way to retain information in short-term memory is to ***rehearse*** (or repeat) it. When you look up a phone number and repeat it to yourself on the way to the phone, you are rehearsing that information. Simple repetition can hold information in short-term memory, but other strategies are more effective in ensuring short-term memories are encoded into long-term memory.

When people develop expertise in an area, they process information not only in chunks but also in ***hierarchies*** composed of a few broad concepts divided and subdivided into narrower concepts and facts. Organizing knowledge in hierarchies helps us retrieve information efficiently. An example of a hierarchy is a textbook organized into chapters and sections.



Distributed Practice

We retain information better when our encoding is distributed over time. There have been numerous experiments that support the idea of the ***spacing effect***. The spacing effect refers to the tendency for distributed study or practice to yield better long-term retention than is achieved through mass study or practice.

One way to distribute practice is repeated self-testing, a phenomenon called the testing effect. The ***testing effect*** refers to enhanced memory after retrieving, rather than simply rereading information. The testing effect is sometimes called the retrieval practice effect or test-enhanced learning.

LONG-TERM MEMORY

Since memories fade from sensory and short-term memory so quickly, we obviously need a more permanent way to remember events***. Long-term memory*** is our permanent storage. As far as we know, the capacity of long-term memory is unlimited. No one reports their memory as being full and unable to encode new information. Studies show that once information reaches long-term memory, we will likely remember it for the rest of our lives. However, memories can decay or fade from long-term memory, so it is not truly permanent. Long-term memories can be stored in three different formats:

Episodic memory	Memories of specific events, stored in a sequential series of events. Example: remembering the last time you went on a date.
Semantic memory	General knowledge of the world, stored as facts, meanings, or categories rather than sequentially. Example: What is the difference between the effect of the terms and affect?
Procedural memory	Memories of skills and how to perform them. These memories are sequential but might be very complicated to describe in words. Example: How to throw a curveball.

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Compare and contrast various cognitive processes: effortful versus automatic processing; deep versus shallow processing; focused versus divided attention.

Memories can also be implicit or explicit. ***Explicit memories*** (also called declarative memories) are what we usually think of first. They are the conscious memories of facts or events we actively tried to remember. When you study this chapter, you try to form explicit memories about the memory theories***. Implicit memories*** (also called nondeclarative memories) are unintentional memories that we might not even realize we have. For example, while you are helping your friend clean her house, you might find that you have implicit memories about how to scrub a floor properly after watching your parents do it for so many years.

Memory researchers are particularly interested in individuals who demonstrate eidetic, or photographic, memory. Psychologist Alexandra Luria studied a patient with an eidetic memory who could repeat a list of 70 letters or digits. The patient could even repeat the list backward or recall it up to 15 years later! Luria and other researchers showed that these rare individuals seem to use very powerful and enduring visual images.

Levels of Processing Model

An alternate way to think about memory is the levels of processing model. This theory explains why we remember what we do by examining how deeply the memory was processed or thought about. Memories are neither short- nor long-term. They are ***deeply (or elaboratively) processed*** or ***shallowly (or maintenance) processed***. If you simply repeat a fact to yourself several times and then write it on your test as quickly as you can, you have only shallowly processed that fact and you will forget it quickly. However, if you study the context and research the reasons behind the fact, you have deeply processed it and will likely recall it later. According to the levels of processing theory, we remember things we spend more cognitive time and energy processing. This theory explains why we remember stories better than a simple recitation of events and why, in general, we remember questions better than statements. When we get caught up in a story or an intriguing question, we process it deeply and are therefore more likely to remember it.

Dual-Track Memory: Effortful Versus Automatic Processing

Our dual track-brain processes many things simultaneously (some of them unconsciously) using parallel processing. In parallel processing, we process many things at the same time.

We encode explicit memories through conscious ***effortful processing***. Effortful processing requires attention and conscious effort. In our dual-track mind, we also use automatic processing. ***Automatic processing*** is the unconscious encoding of incidental information, such as space, time, and frequency, and of well-learned information such as word meanings.

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Please watch: HOW WE MAKE MEMORIES

Describe and differentiate psychological and physiological systems of memory (e.g., short-term memory, procedural memory).

Are memories stored in just one part of the brain, or are they stored in many different parts of the brain? The answer to this question has been debated for over a century. Researchers have looked for evidence of the engram: the group of neurons that serve as the "physical representation of memory." Although the engram has never been found, results of the research support the equipotentiality hypothesis: if part of one area of the brain involved in memory is damaged, another part of the same area can take over that memory function.

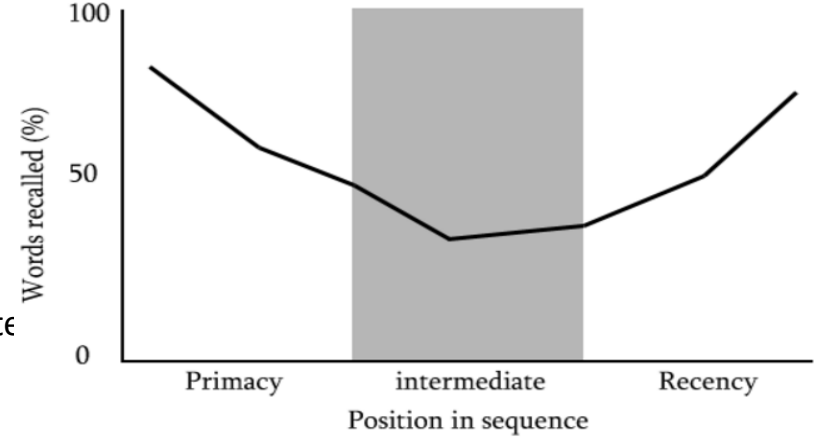
Some modern researchers believe that they are making progress in locating the engram. Many scientists believe that the entire brain is involved with memory. However, since Lashley's research, other scientists have been able to look more closely at the brain and memory. They have argued that memory is located in specific parts of the brain, and specific neurons can be recognized for their involvement in forming memories. The main parts of the brain involved with memory are the amygdala, the hippocampus, the cerebellum, and the prefrontal cortex.

The Amygdala	**The Hippocampus**	**The Cerebellum**	The **cerebral cortex** plays a key role in memory, attention, perceptual awareness, thought, language, and consciousness. The **frontal lobe** (involved in conscious thought and higher mental functions such as decision-making, particularly in that part of the frontal lobe known as the prefrontal cortex, and plays an important part in processing short-term memories and retaining longer-term memories that are not task-based) The **temporal lobe** (involved with the senses of smell and sound, the processing of semantics in both speech and vision, including the processing of complex stimuli like faces and scenes, and plays a key role in the formation of long-term memory); and the occipital lobe (mainly involved with the sense of sight). The **medial temporal lobe** (the inner part of the temporal lobe, near the divide between the left and right hemispheres) in particular is thought to be involved in declarative and episodic memory. Deep inside the medial temporal lobe is the region of the brain known as the **limbic system**.
Emotion-related memory The amygdala seems to facilitate encoding memories at a deeper level when the event is emotionally arousing (especially fear) ***Flashbulb memories***- a clear memory of an emotionally significant moment or event	Is essential for memory function, particularly the transference from short- to long-term memory and control of spatial memory and behavior. Explicit memories. The hippocampus is one of the few areas of the brain capable of actually growing new neurons. Damage or removal of the hippocampus will result in the inability to develop new memories **Please read: The Lost Mariner**	Plays an important role in balance and motor control, but is also involved in some cognitive functions such as attention, language, emotional functions (such as regulating fear and pleasure responses), and in the processing of procedural memories and implicit memory.	

Outline the principles that underlie effective encoding, storage, and construction of memories.

RETRIEVAL - The last step in any memory model is retrieval, or getting information out of memory so we can use it. There are two different kinds of retrieval: ***recognition*** and ***recall***. Recognition is the process of matching a current event or fact with one already in memory (for example, "Have I smelled this smell before?"). Recall is retrieving a memory with an external cue (for example, "What does my Nana's perfume smell like?"). Studies have identified several factors that influence why we can retrieve some memories and why we forget others.

One factor is the order in which the information is presented. In some of the first psychological experiments, ***Hermann Ebbinghaus*** (1850–1909) established that the order of items in a list is related to whether or not we will recall them. The ***primacy effect*** predicts that we are more likely to recall items presented at the beginning of a list. The ***recency effect*** is demonstrated by our ability to recall the items at the end of a list. Items in the middle are most often forgotten. Together the primacy and recency effects demonstrate the ***serial position effect*** (also called the serial position curve). This effect is seen when the recall of a list is affecte by the order of items in a list.



Context is an important factor in retrieval. Have you ever tried to remember someone's name and start listing things about their appearance or personality until you finally come up with the name? This temporary inability to remember information is sometimes called the ***tip-of-the-tongue phenomenon***.

One theory that explains why this might work is the ***semantic network theory***. This theory states that our brain might form new memories by connecting their meaning and context with meanings already in memory. Thus, our brain creates a web of interconnected memories, each one in context tied to hundreds or thousands of other memories. So, by listing traits, you gradually get closer and closer to the name and you are finally able to retrieve it.

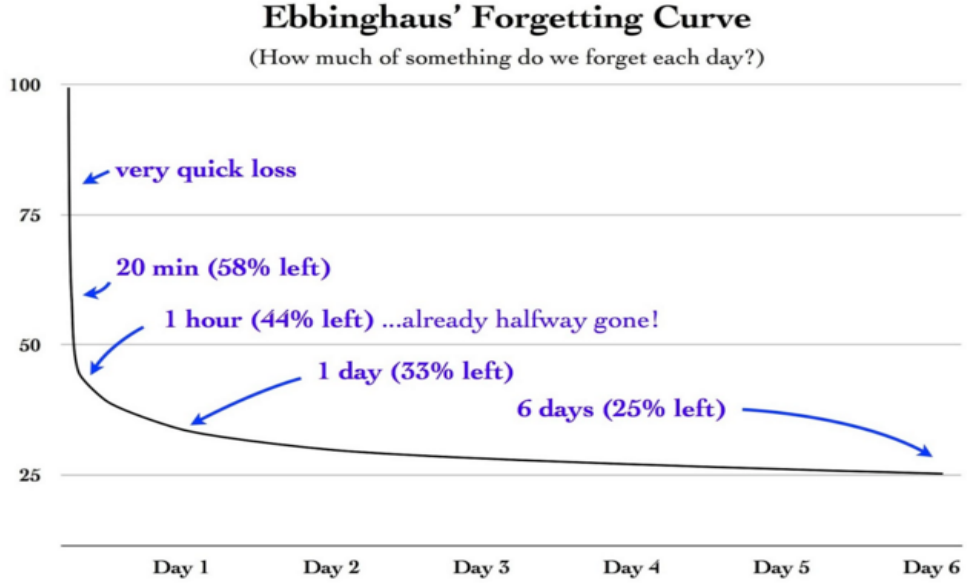
Context also explains another powerful memory experience we all have. If you ask someone born in the 1990s or earlier where they were during the September 11, 2001, terrorist attack, they are likely to give you a detailed description of exactly what they were doing in those moments. These ***flashbulb memories*** are powerful because the importance of the event caused us to encode the context surrounding the event. However, some studies show that flashbulb memories can be inaccurate. Perhaps we tend to construct parts of the memory to fill in gaps in our stories.

The emotional or situational context of memory can affect retrieval in yet another way. Studies consistently demonstrate the power of ***mood-congruent memory*** or the greater likelihood of recalling an item when our mood matched the mood we were in when the event happened. We are likely to recall happy events when we are happy and recall negative events when we are feeling pessimistic. ***State-dependent memory*** refers to the phenomenon of recalling events encoded while in particular states of consciousness. If you suddenly remember an appointment while you are drowsy and about to go to sleep, you need to write it down. Very possibly, you will not remember it again until you are drowsy and in the same state of consciousness. Alcohol and other drugs affect memory in similar ways.

Priming is the implicit memory effect in which exposure to a stimulus influences response to a later stimulus. It is a technique in psychology used to train a person's memory both in positive and negative ways.

FORGETTING

Sometimes, despite our best efforts, we forget important events or facts that we try and want to remember. One cause of forgetting is decay, forgetting because we do not use a memory or connections to memory for a long period of time. For example, you might memorize the state capitals for a civics test but forget many of them soon after the test because you do not need to recall them. However, your studying was not in vain! Even memories that decay do not seem to disappear completely. Many studies show an important ***relearning effect***. If you have to memorize the capitals again, it will take you less time than it did the first time you studied them.



Hermann Ebbinghaus (1850–1909) was a German psychologist who conducted pioneering research on forgetting. Ebbinghaus invented three-letter nonsense syllables such as TIX and ZEL. He then tested his recall of them after varying amounts of time.

Ebbinghaus' famous forgetting curve shows two distinct patterns. First, memories of relatively meaningless information are lost shortly after they have been learned. Second, following this initial plunge, the rate of forgetting levels off and then slowly declines.

The Ebbinghaus forgetting curve can be applied to such common experiences as learning names at a party or cramming facts before an exam. Most of the names and facts are then quickly forgotten.

Another factor that causes forgetting is interference. Sometimes other information in your memory competes with what you are trying to recall. Interference can occur through two processes:

Retroactive interference occurs when learning **re**cent information interferes with the recall of older information. If you study your psychology at 3:00 and your sociology at 6:00, you might have trouble recalling the psychology information on a test the next day. (recent interferes with old)

Proactive interference occurs when **p**ast information learned previously interferes with the recall of information learned more recently. If a researcher reads you a list of items in a certain order, then rereads them differently and asks you to list them in the new order, the old list proactively interferes with the recall of the new list. (past restricts new).

Test Tip

AP Psychology test writers know that students often confuse proactive and retroactive interference. Don't be confused. Proactive interference means that an old memory is moving forward ("pro") to interfere with a new memory. For example, your memory of the combination to your old locker reaches forward and interferes with remembering the combination to your new locker. Retroactive interference means that a new memory moves backward ("retro") to interfere with an old memory. For example, your team learns a new set of plays that now interfere with your performance of the old plays.

Amnesia is severe memory loss.

RETROGRADE AMNESIA

People who suffer from retrograde amnesia are unable to remember some or all of their past. Retrograde amnesia especially affects episodic memories of recent events.

Automobile and motorcycle accidents are the leading causes of retrograde amnesia. For example, on August 31, 1997, Diana, Princess of Wales, her companion Dodi Fayed, and driver Henri Paul were all killed in a car accident in Paris. Fayed's bodyguard, Trevor Rees-Jones, was the only survivor. Because of severe head injuries, Rees-Jones suffers from retrograde amnesia and cannot recall the particulars of the accident.

ANTEROGRADE AMNESIA

People who suffer from anterograde amnesia are unable to form new memories. The best-known and most extensively studied case of anterograde amnesia is that of Henry Molaison (1926–2008), better known as H.M.

H.M. suffered from severe epileptic seizures. In 1953, his surgeon removed portions of H.M.'s medial temporal lobes, including his hippocampus. The experimental surgery successfully controlled H.M.'s epilepsy. However, doctors soon discovered that H.M. could not commit new events to long-term memory. Known as "The Man Who Couldn't Remember," H.M. lived in an eternal present.

Psychologists Brenda Milner and Suzanne Corkin worked with H.M. for over 30 years. Their exhaustive studies revolutionized the understanding of the organization of human memory and helped establish the field of neuropsychology.

Source amnesia occurs when a person is able to remember certain information but unable to recall when, why, or where they learned it. In most cases, source amnesia affects a person's explicit memory, which is the intentional recall of certain information like names and dates.

Implicit memory from infancy can be retained, including skills and conditioned responses. However, explicit memories, our recall for episodes, only goes back to about age 3 for most people. This nearly 3-year "blank" in our memories has been called **infantile amnesia**.

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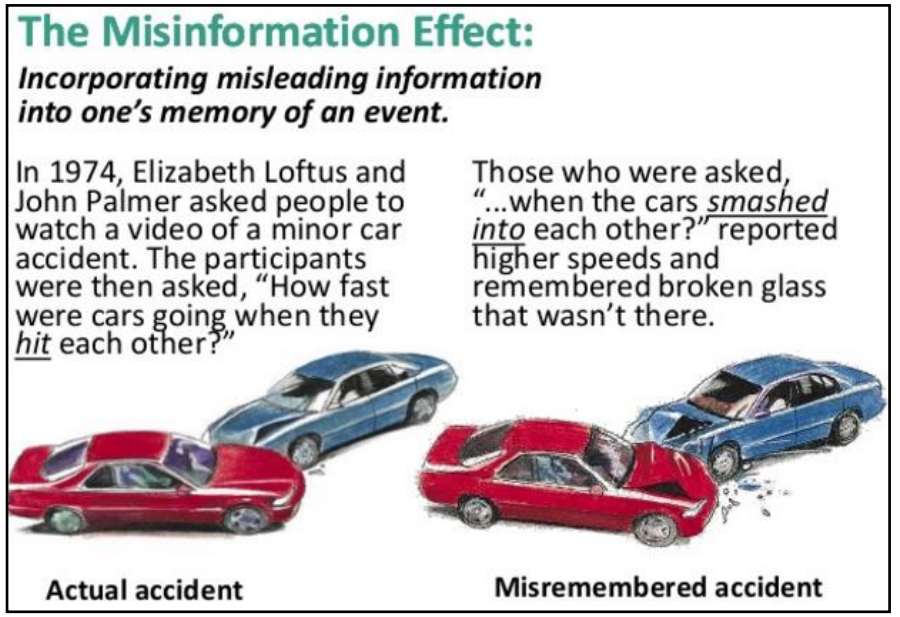
MEMORY DISTORTION

The human memory is far from perfect. Important details can be changed, exaggerated, and even deleted. ***Elizabeth Loftus*** (b. 1944) is an American psychologist who is a renowned expert on memory distortion.

THE MISINFORMATION EFFECT

A ***memory distortion*** phenomenon in which a person's existing memories can be altered if a person is exposed to misleading information. In a classic study, Loftus showed her subjects a film of an automobile accident. The subjects recorded what they saw and answered a series of questions including, "About how fast were the cars going when they contacted each other?" Loftus then varied the question by substituting the verbs "hit," "bumped," "collided," and "smashed" for the word "contacted." The choice of words significantly influenced the subjects' estimate of how fast the cars were traveling. For example, the word "contracted" elicited an average speed estimate of 32 miles per hour. In contrast, "smashed" produced an average speed estimate of 41 miles per hour. Loftus' use of suggestive questions provides compelling evidence of how the information a person receives after an event can lead to memory distortion.



Please read: Study 16

CONSTRUCTIVE MEMORY

Maybe you have seen media coverage of the "recovered memory" phenomenon. Individuals claim suddenly to remember events they have "repressed" for years, often in the process of therapy. Parents have been accused of molesting and even killing children based on these recovered memories. While some of the memories can be corroborated by other means, memory researchers like Elizabeth Loftus have shown that many of these memories may be constructed or false recollections of events. A constructed (or reconstructed) memory can report false details of a real event or might even be a recollection of an event that never occurred. Studies show that leading questions can easily influence us to recall false details, and questioners can create an entirely new memory by repeatedly asking insistent questions. Constructed memories feel like accurate memories to the person recalling them. The only way to differentiate between a false and a real memory is through other types of evidence, such as physical evidence or other validated reports of the event. While some genuine memories may be recalled after being forgotten for years, researchers and therapists are investigating ways to ensure memories are accurate and innocent people are not accused of acts they did not commit.

Deja Vu

From French, meaning "already seen,' Deja vu is that eerie sense of "I've experienced this before." This may occur from the current situation producing some clues that may subconsciously trigger retrieval of an earlier experience. Deja Vu is that eerie sense of "I've experienced this before." This may occur from the current situation producing some clues that may subconsciously trigger retrieval of an earlier experience. As Yogi Berra said, "It's like deja vu."

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Please watch: REMEMBERING AND FORGETTING

Describe strategies for memory improvement.

Applying what we've learned about memory
Improving Memory to Improve Grades

Ways to save overall studying time, and build more reliable memory.

1. **Rehearsa**l- Use distributed practice, and exercise new memories.

2. **Make the material meaningful to you**.- create retrieval cues by taking class and text notes in your own words. Form images. Relate material to own life and to previous knowledge.

3. **Activate Retrieval cues-** mentally recreate the situation where you learned the material. Where were you? Time of day? Mood?

4. **Use mnemonic devices-** use peg words, make up a story that incorporates vivid images, chunk information into acronyms, and create rhymes.

5. **Minimize interference-** study before you sleep, don't schedule back-to-back study sessions.

6. **Sleep more-** allow the brain time to reorganize and consolidate information

7. **Using the testing effect**. Continuous test and rehearse

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Synthesize how biological, cognitive, and cultural factors converge to facilitate acquisition, development, and use of language.

LANGUAGE

A language is a form of communication using spoken and written words and gestures that are combined according to specific rules. Language allows us to communicate and preserve thoughts, ideas, feelings, and experiences.

BUILDING BLOCKS OF LANGUAGE

Phonemes are the smallest distinctive units of sound used in a language. English speakers use approximately 44 phonemes. For example, the p in "party" and the ng in "ping" are both phonemes.

Morphemes are the smallest units of meaning in a language. Morphemes can be words, such as "I" and "a," or they can be parts of words such as the prefix un and the suffix able. For example, the word "unbreakable" consists of three morphemes—the prefix un, the root word break, and the suffix able.

It is very easy to overlook phonemes and morphemes. Remember that a phoneme is the smallest unit of sound and a morpheme is the smallest unit of meaning. One mnemonic device for remembering these terms is to attach them to the familiar PM part of the day. The P comes before the M just as phonemes precede morphemes.

Syntax

Grammatical rules for putting words in the correct order. Sentences are sequences of words constructed according to the rules of syntax. Each language has its own syntax.

Overregulation of grammar rules

Overregulation occurs when children apply a grammatical rule too widely and therefore create incorrect forms. The following sentence by a three-year-old contains two examples of overregulation: "I holded the window closed, daddy, and now the mouses can't get out." Note that the child used "holded" instead of "held" and "mouses" instead of "mice."

Please Watch: LANGUAGE

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Language Acquisition

Developmental psychologists are curious about how our language learning reflects or predicts our cognitive development. These studies show that while babies are learning very different languages, they progress through the same basic stages in order to master the language.

SUMMARY OF LANGUAGE DEVELOPMENT

Month (approximate)	Stage
4	Babbles many speech sounds. "Ah-goo"
10	Babbling resembles household language. "Da-Da"
12	One-word stage. "Doggy"
24	Two-word, telegraphic speech. "Get ball"
24+	Language develops rapidly into complete sentences.

First, ***babbling*** is the first stage of language acquisition that occurs at about 4 months of age. The babbling stage appears to be innate; even babies born completely deaf go through the babbling stage. A baby's babble represents experimentation with phonemes. They are learning what sounds they are capable of producing. Babies in this stage are capable of producing any phoneme from any language in the world. As language acquisition progresses, we retain the ability to produce phonemes from our primary language (or languages) and lose the ability to make some other phonemes. This is one reason why learning more than one language starting in infancy may be advantageous.

Babbling progresses into utterances of words as babies imitate the words they hear caregivers Speaking. The time during which babies speak in single words (holophrases) is sometimes called the Holophrastic stage or ***one-word stage***. This usually happens around their first birthday.

The next language acquisition stage occurs at around 18 months and is called the ***telegraphic speech*** or ***two-word stage***. Toddlers will combine the words they can say into simple commands. Meaning is usually clear at this stage, but syntax is absent. When a toddler shouts, "No milk, banana!" you know that he means, "Children begin to learn grammar and syntax rules during this stage, sometimes misapplying the rules.

For example, they might learn that adding the suffix -ed signifies past tense, but they might apply it at inappropriate times, such as, "Marky hitted my head so I throwed the truck at him." Children gradually increase their abilities to combine words in proper syntax if these uses are modeled for them. This misapplication of grammar rules is called **overgeneralization or overregularization**.

One important controversy in language acquisition concerns how we acquire language. Behaviorists theorized that language is learned like other learned behaviors: through operant conditioning and shaping. They thought that when children used language correctly, they got rewarded by their parents with a smile or other encouragement, and therefore they would be more likely to use language correctly in the future.

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More recently, cognitive psychologists challenged this theory. They point out the amazing number of words and language rules learned by children without explicit instruction by parents

NOAM CHOMSKY (B. 1928) AND LANGUAGE DEVELOPMENT

Noam Chomsky is a renowned linguist who argues that young children possess an innate capacity to learn and produce speech. Chomsky notes that children in widely different cultures progress through the same stages of language development at about the same ages. Chomsky hypothesized that humans learn language because of innate speech-enabling structures called the language acquisition device or LAD.

Chomsky pointed to the retarded development of language in cases of children deprived of exposure to language during childhood. He theorized that a critical period (a window of opportunity during which we must learn a skill, or our development will permanently suffer) for learning language may exist

Most psychologists now agree that we acquire language through some combination of conditioning and an inborn propensity to learn the language.

BENJAMIN WHORF (1897–1941) AND THE EFFECT OF LANGUAGE ON THOUGHT

Benjamin Whorf was a linguist who believed that a language does more than describe a person's culture. Whorf argued that a person's language may also shape a person's thoughts and perceptions. This proposal is called the linguistic relativity hypothesis.

Whorf illustrated his hypothesis by pointing out that Eskimos (Inuits) have many different words for snow. In contrast, English has one word—"snow." According to Whorf, "We have the same word for falling snow, snow on the ground, snow packed hard like ice, slushy snow, wind-driven flying snow–whatever the situation may be. To an Eskimo, this all-inclusive word would be almost unthinkable; he would say that falling snow, slushy snow, and so on are sensuously and operationally different…he uses different words for them and for other kinds of snow."

For an excellent lecture on language created by psychologist Steven Pinker click on this link: lecture

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Identify problem-solving strategies as well as factors that influence their effectiveness.

Cognition may be described as the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses. Trying to describe thought is problematic. Descriptions are thoughts, so we are attempting to describe thought using thought itself. A global, all-inclusive definition of thought is difficult, but psychologists try to define types or categories of thoughts.

BUILDING BLOCKS OF THOUGHT

A ***mental image*** is a mental picture of a previously stored sensory experience. Images can be visual, such as imagining what a rainbow looks like. However, images are not strictly limited to visual pictures. For example, you can probably create a mental representation of the sound of a roaring race car, the smell of barbecued chicken, or the feel of a warm breeze blowing through your hair.

A ***concept*** is a mental category formed to group objects, events, or situations that share similar features and characteristics. Artificial or formal concepts are defined by a specific set of rules or features. Geometric shapes, such as triangles, squares, and rectangles, are all formal concepts. Natural concepts are formed by everyday experience. Vehicles, birds, and fruit are all-natural concepts.

A ***prototype*** is the most typical instance of a particular concept. For example, a car would be the The prototypical example of a vehicle, a robin would be the prototypical example of a bird and an apple would be the prototypical example of a fruit.

A ***schema*** is an organized mental framework about a particular topic, event, object, idea, setting, or group of people. For example, to a student, the word "high school" probably conjures up a schema that includes classrooms, cafeterias, science labs, band rooms, and athletic fields. Schemas play an important role in how we learn to categorize different groups of people. For example, children learn different schemas for racial groups that can include stereotypes and prejudices.

A ***script*** is a type of schema that involves the typical sequence of behavior expected at an everyday event. For example, we have scripts for riding a school bus, attending a class, going to a Christmas party, and taking a date to a movie.

AP Psychology test writers have used the concept of schema in both multiple-choice and free-response questions. The multiple-choice questions typically focus on the definition of a schema as a mental construct built up through experience. The free-response questions ask you to apply the concept of schema to an everyday problem or social situation. For example, a 1995 free-response question asked students to explain how schemas contribute to the phenomena of prejudice.

Please Watch: **COGNITION: HOW YOUR MIND CAN AMAZE AND BETRAY YOU**

Problem-Solving

Many researchers try to study thought by examining the results of thinking. Researchers can ask participants to solve problems and then investigate how the solutions were reached. This research indicates at least two different problem-solving methods we commonly use and some traps to avoid when solving a problem.

Intuition is a process that gives us the ability to know something directly without analytic reasoning, bridging the gap between the conscious and nonconscious parts of our mind, and also between instinct and reason.

We think of intuition as a magical phenomenon—but hunches are formed out of our past experiences and knowledge. So while relying on gut feelings doesn't always lead to good decisions, it's not nearly as flighty a tactic as it may sound.

ALGORITHMS (system 2)

One way to solve a problem is to try every possible solution. An algorithm is a rule that guarantees the right solution by using a formula or other foolproof method. If you are trying to guess a computer password and you know it is a combination of only two letters, you could use an algorithm and guess pairs of letters in combination until you hit the right one. What if the password is a combination of five letters, not two? Sometimes algorithms are impractical, so a shortcut is needed to solve certain problems.

HEURISTICS (system 1)

A heuristic is a rule of thumb—a rule that is generally, but not always, true that we can use to make a judgment in a situation. For example, if you are trying to guess the password mentioned previously, you might begin by guessing actual five-letter words rather than random combinations of letters. The password might be a meaningless combination of letters, but you know that passwords are most often actual words. This heuristic limits the possible combinations dramatically. The following shows two specific examples of heuristics.

In his book, Thinking Fast and Slow, ***Daniel Kahneman*** writes about the idea of system 1 and system 2 thinking.

Please read: Judgment under Uncertainty: Heuristics and Biases

	System 1	System 2
Characteristics	Fast, Effortless, Unconscious, Triggers emotions, Associative, Looks for patterns, Looks for causation, Creates stories to explain events	Slow, Effortful, Conscious, Logical, Deliberative, Can handle abstract concepts
Advantages	Speed of response in a crisis, Creativity through associations, so good for expansive thinking, Easy completion of routine or repetitive tasks	Allows reflection and consideration of the "bigger picture", options, pros and cons, consequences, Can handle logic, maths, statistics, Good for reductive thinking
Disadvantages	Jumps to conclusions, Unhelpful emotional responses, Can make errors that are not detected and corrected, such as wrong assumptions, poor judgements, false causal links	Slow, so requires time, Requires effort and energy, which can lead to decision fatigue

Availability heuristic **-** Judging a situation based on examples of similar situations that come to mind initially. This heuristic might lead to incorrect conclusions due to variability in personal experience. For example, a person may judge his or her neighborhood to be more dangerous than others in the city simply because that person is more familiar with violence in his or her neighborhood than in other neighborhoods.

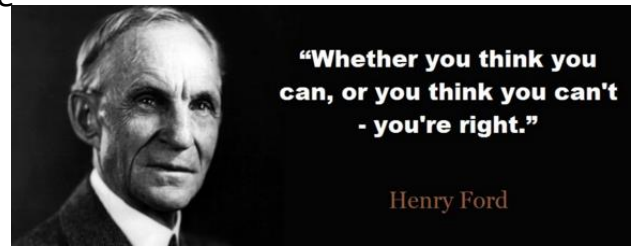
The ***framing effect*** is an example of cognitive bias, in which people react to a particular choice in different ways depending on how it is presented; e.g. as a loss or as a gain. People tend to avoid risk when a positive frame is presented but seek risks when a negative frame is presented.

Representativeness heuristic- Judging a situation based on how similar the aspects are to prototypes the person holds in his or her mind. While disregarding base rates.

Overconfidence is our tendency to overestimate how accurate our judgments are. How confident we are in a judgment is not a good indicator of whether or not we are right. In studies, most people will report extreme confidence in a judgment that turns out to be wrong in a significant number of cases.

Two concepts closely related to overconfidence are ***belief bias*** and ***belief perseverance***. Both of these concepts concern our tendency not to change our beliefs in the face of contradictory evidence. Belief bias occurs when we make illogical conclusions in order to confirm our preexisting beliefs. Belief perseverance refers to our tendency to maintain a belief even after the evidence we used to form the belief is contradicted. Overall, these concepts demonstrate that humans are generally more confident in our beliefs than we should be, and we often stick with our beliefs even when presented with evidence that disproves them. This lends insight to the development of the mental set.

A ***mental set*** is a tendency to approach situations in a certain way because that method worked in the past. However, you can also think of a mental set as your character and overall approach to life. Although we learn an amazing amount of information over our lifespans, we have a tendency to stick with what we know. Many of us don't like to go out of our comfort zone. Our brain works in a wonderful way but sometimes it limits us or at least holds us back on time. Mental sets are a way that we use previous knowledge to our advantage in certain situations but sometimes using knowledge from previous situations in a new situation is not a good idea.



The beliefs of your metal set have a lot to do with your behavior. All of the ways that you act, all of the time, tend to be congruent with your mental set. In other words, you tend to stay in character. If a person believes that they are not up to a task, then their behavior will demonstrate that belief. If you believe that you are capable, then you will express that in your behavior. The diagram below shows the relationship between your mental set and all of the ways that you will typically behave.

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Please Watch: **12 COGNITIVE BIASES EXPLAINED - HOW TO THINK BETTER AND MORE LOGICALLY REMOVING BIAS**

List the characteristics of creative thought and creative thinkers.

Creativity

If you thought defining thought was tough, try defining creativity! The concept itself resists categorization. Again, even though defining this concept is difficult, researchers have investigated definable aspects of creativity. For example, ***Wolfgang Köhler*** (1887–1967) documented details of the "aha experience" or ***insight*** by observing a group of chimpanzees as they generated original solutions to retrieve bananas that were out of reach.

Researchers investigating creative thinking find little correlation between intelligence and creativity. Studies show that while we may agree in general about specific examples that demonstrate creativity, individual criteria for creativity vary widely. Most people's criteria do involve both originality and appropriateness. When judging whether or not something is creative, we look at whether it is original or novel and somehow fits the situation.

Some researchers are investigating the distinctions between ***convergent thinking***, thinking pointed toward one solution, and ***divergent thinking***, thinking that searches for multiple possible answers to a question. Divergent thinking is more closely associated with creativity. Creative activities usually involve thinking of new ways to use what we are all familiar with or new ways to express emotions or ideas we share. Painting by the numbers is convergent thinking, but we would probably call painting outside the lines and/or mixing your hues of creative and divergent thinking.

Obstacles to Creativity

Functional Fixedness is the tendency to think of an object as functioning only in its usual or customary way. As a result, individuals often do not see unusual or innovative uses for familiar objects.

For example, Courtney and his wife Audrey are enjoying a visit to a tropical rainforest. One day while on a canoe trip, a summer rainstorm suddenly approaches, catching them by surprise. They are soon soaked because they did not think of cutting holes in their environmentally friendly plastic trash bags and using them as improvised raincoats.

Robert Sternberg's
Characteristics of Creative Thinkers

1. **Expertise**- developed knowledge furnishes ideas

2. Creative people display a willingness to grow, and change, and are **risk-takers**

3. Creative people are **intrinsically motivated** and display an ability to focus their full attention on a problem.

4. **Imaginative thinking skills-** seeing things in different ways, recognizing patterns, and making connections

5. **Creative environments** spark creative ideas

Investment Theory of Creativity by Robert Sternberg

The investment theory of creativity, proposed in collaboration with Todd Lubart, holds that creativity is in large part a decision. In particular, it is a decision to buy low and sell high in the world of ideas. Creative people, like good investors, generate ideas that, at the time are viewed as novel and perhaps slightly ridiculous. The creative individuals are metaphorically "buying low." Then, once their ideas have gained some acceptance, the creative individuals "sell high," reaping the profits of their good idea and moving on to the next unpopular idea.

Creative individuals, by their nature, tend to defy the crowd. They resist merely thinking or doing what others are thinking or doing. Rather, they tend to go off in their own direction, seeking to propose ideas that are both novel and useful in some way. The greatest obstacle to creativity, therefore, often is not exactly strictures from others, but rather the limitations one places on one's own thinking. Such limitations, however, may derive from processes of enculturation and socialization, so that it often is not clear whether restrictions on creativity are internal or, down the line, externally imposed.

Creativity is a decision in the same way investing is. People are not born creative or uncreative. Rather, they develop a set of attitudes toward life that characterize those who are willing to go their own way. Examples of such attitudes toward life are willingness to (a) redefine problems in novel ways, (b) take sensible risks, (c) "sell" ideas that others might not initially accept, (d) persevere in the face of obstacles, and (e) examine whether their own preconceptions are interfering with their creative process. Such attitudes are teachable and can be ingrained in students through instruction that encourages students to think for themselves.

Creativity comprises several different aspects: (a) abilities, (b) knowledge, (c) styles of thinking, (d) personality attributes, (e) motivation, especially intrinsic motivation, and (f) environment. A person can have the creative ability that would allow for creativity, for example, but without a willingness to take sensible risks or an environment that provides at least minimal support for creativity, that individual's potential creativity may be suppressed. It is thus crucially important, especially in schools, to provide an environment that allows creativity to flourish—not just in word, but also in deed. At the same time, an individual can have a creative attitude but without the skills of creativity—such as looking for reconciliation of opposing ideas and dialectical thinking—may not reach his or her ful creative potential.

Over-learning

Please Watch: JOHN GABRIELI M.I.T. LECTURE 10: MEMORY 1

Please watch: JOHN GABRIELI M.I.T. LECTURE 11: MEMORY 2

Please watch: ELIZABETH LOFTUS TED TALKS ON MEMORY

Please watch: JOHN GABRIELE M.I.T. LECTURE 12: LANGUAGE

Please Watch: JOHN GABRIELE M.I.T. LECTURE 13: THINKING

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Motivation, Emotion, and Stress

In this part of the course, students explore biological and social factors that motivate behavior and biological and cultural factors that influence emotion.

Myers Modules 37- 44 pages 389-459

6 to 8 % of AP Course

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Objectives

- ☐ I can identify and apply basic motivational concepts to understand the behavior of humans and other animals (e.g., instincts, incentives, intrinsic versus extrinsic motivation).
- ☐ I can discuss the biological underpinnings of motivation, including needs, drives, and homeostasis.
- ☐ I can compare and contrast motivational theories (e.g., drive reduction theory, arousal theory, general adaptation theory), including the strengths and weaknesses of each.
- ☐ I can describe classic research findings in specific motivation systems (e.g., eating, sex, social)
- ☐ I can discuss theories of stress and the effects of stress on psychological and physical well-being.
- ☐ I can compare and contrast major theories of emotion (e.g., James–Lange, Cannon– Bard, Schachter two-factor theory).
- ☐ I can describe how cultural influences shape emotional expression, including variations in body language.
- ☐ I can identify key contributors in the psychology of motivation and emotion (e.g., William James, Alfred Kinsey, Abraham Maslow, Stanley Schachter, Hans Selye).

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Define and Apply the following the following Vocab and/or concepts

- ☐ motivation
- ☐ instinct
- ☐ drive-reduction theory
- ☐ homeostasis
- ☐ incentive
- ☐ Yerkes-Dodson law
- ☐ hierarchy of needs
- ☐ glucose
- ☐ set point
- ☐ basal metabolic rate
- ☐ sexual response cycle
- ☐ refractory period
- ☐ sexual dysfunction
- ☐ estrogens
- ☐ testosterone
- ☐ emotion
- ☐ James-Lange theory
- ☐ Cannon-Bard theory
- ☐ two-factor theory
- ☐ polygraph
- ☐ facial feedback effect
- ☐ health psychology
- ☐ stress
- ☐ general adaptation syndrome (GAS)
- ☐ tend and befriend response
- ☐ Approach-Approach conflict
- ☐ Approach-Avoidance conflict
- ☐ Avoidance-Avoidance conflict
- ☐ psychophysiological illness
- ☐ psychoneuroimmunology
- ☐ lymphocytes
- ☐ coronary heart disease
- ☐ Type A
- ☐ Type B
- ☐ Paul Ekman
- ☐ William Masters/Virginia Johnson
- ☐ William James
- ☐ Alfred Kinsey
- ☐ Abraham Maslow
- ☐ Stanley Schachter
- ☐ Hans Selye

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I can identify and apply basic motivational concepts to understand the behavior of humans and other animals (e.g., instincts, incentives, intrinsic versus extrinsic motivation).

Motivation theories address why people do what they do. ***Motivations*** are feelings or ideas that cause us to act toward a goal. Motivations can be both conscious and subtle. The following pages cover the connections between physiology and motivation, general motivation theories, and specific examples of motivation in hunger and sex. In addition to motivation, this unit covers psychological research and theories about emotion and stress that are closely related to motivation theory.

Animals are born with ***instincts***, which are automatic behaviors performed in response to specific stimuli. Ever since Charles Darwin's theory of natural selection was published, many psychologists unsuccessfully tried to explain all human behaviors through instincts. However, many psychologists rebuffed instinct theory since it lacked the ability to fully explain human motivation. Some psychologists still research the role evolution plays in human behaviors and thoughts. They study persistent human behaviors to find if any are the result of evolutionary advantages. Today, psychologists still use the evolutionary perspective to explore our eating habits, how we choose mates, the expression of emotions, and other patterns of human behavior.

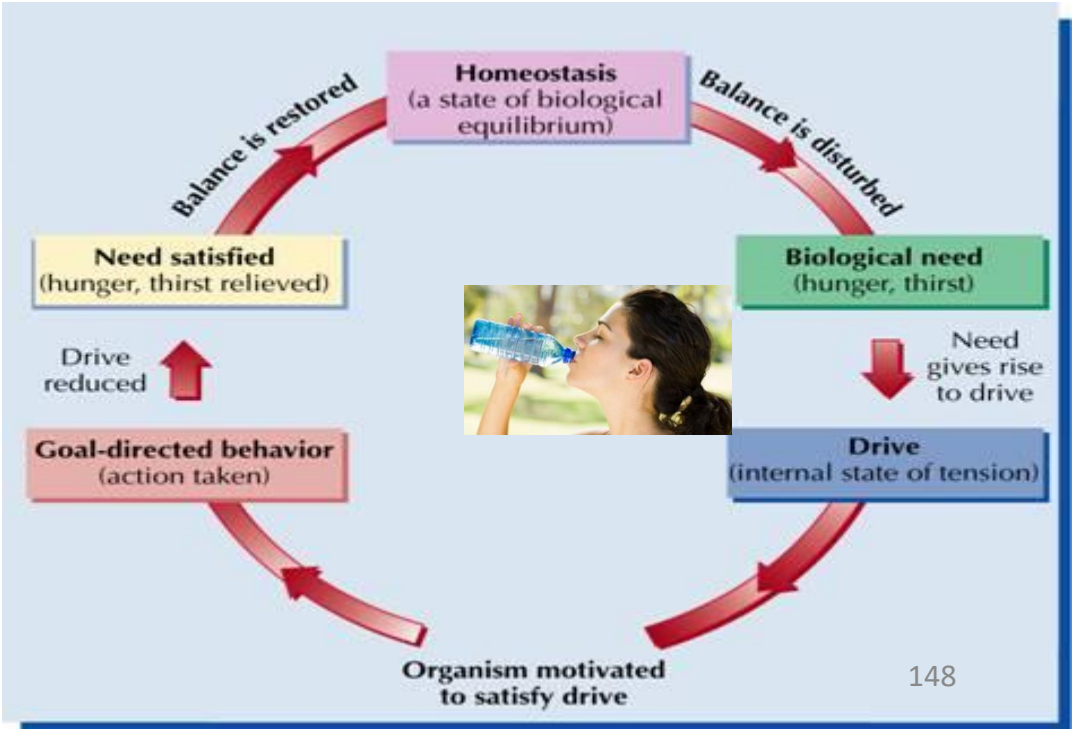
I can discuss the biological underpinnings of motivation, including needs, drives, and homeostasis.

The ***drive reduction theory*** is based on the biological concept of ***homeostasis***. This key concept means "standing still." According to the principle of homeostasis, the body seeks to maintain a stable internal state, such as constant internal temperature and fluid levels. For example, after playing a game of soccer, players drink large quantities of water to restore homeostasis in their fluid levels.

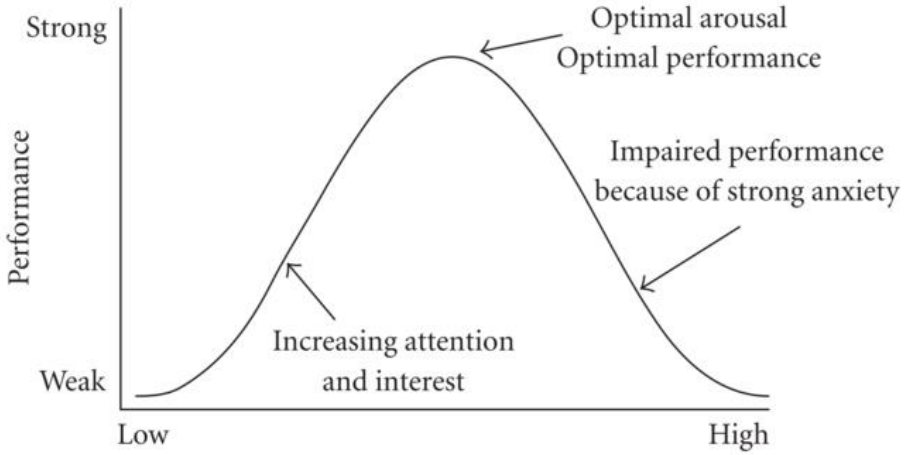
According to the theory, if any of its ***needs*** are unmet, the body will create a state of tension called a "***drive***." We will drink water as a result of a drive for satisfying thirst and eat food as a result of a drive for satisfying hunger.

The drive reduction theory works well to explain motivated behaviors that have a clear biological basis. However, the drive reduction theory cannot account for many human behaviors.

Using the Drive reduction theory, explain why an athlete might perform worse on an extremely hot day as opposed to a day with mild temperatures.



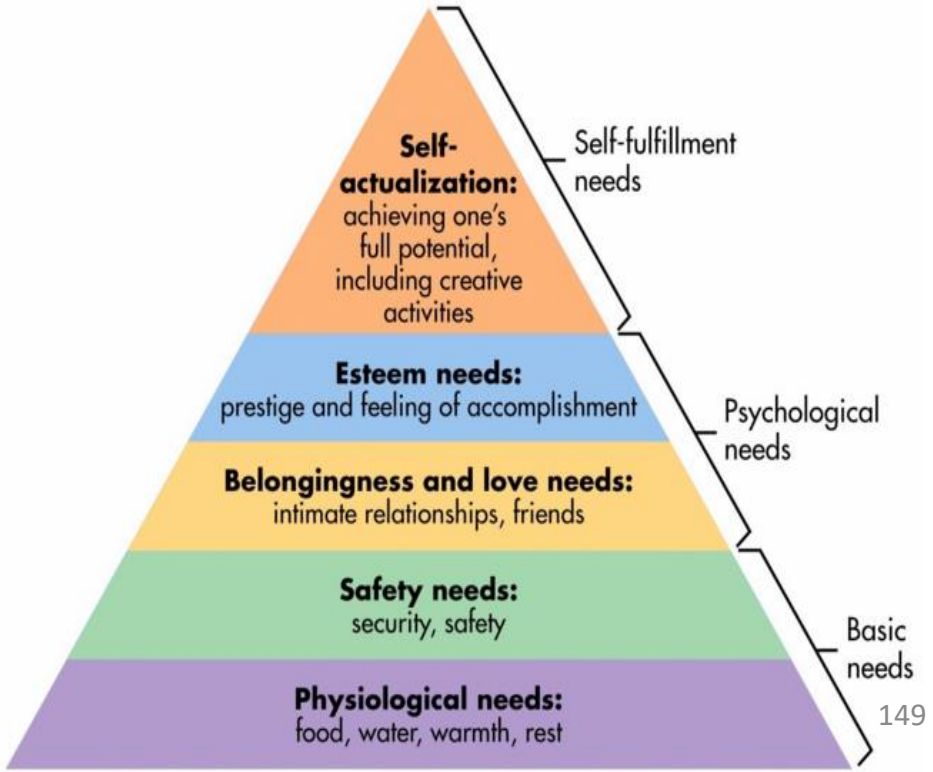
Humans have different needs for excitement and arousal and according to ***optimal arousal theory,*** we seek an optimum level of excitement or arousal. The ***Yerkes-Dodson law*** states that an optimal level of psychological arousal helps performance. When arousal is too low, we become bored and lose motivation. When arousal is too high, we may become too anxious or frustrated which may also result in poor motivation. People are thus motivated to seek an appropriate level of stimulation that is neither too easy nor too difficult. For example, if a sprinter is racing against other runners who are either much slower or much faster, both situations may result in a lack of arousal and poorer performance. Moderate arousal Will yield the best results.



How might a teacher use the optimal arousal theory to produce stronger performances from his or her students?

According to ***Incentive Theory***, sometimes behavior is not pushed by a need, it is pulled by a desire. ***Incentives*** are stimuli that we are drawn to due to learning. We learn to associate some stimuli with rewards and others with punishment, and we are motivated to seek the re For example, the prospect of a better life incentivized many Europeans to immigrate to Amer the early part of the 20th century.

Psychologist ***Abraham Maslow*** created a ***hierarchy of needs*** that combines and prioritizes biological, psychological, and social needs. According to Maslow, people begin with basic physiological and safety needs. Once these needs are met, the individual progresses to higher-level needs culminating with self-actualization.



Psychologists have criticized Maslow's model for its vague definition of self-actualization and for some common human behaviors that seem to violate the theory such as a student going without heat to buy books.

How can you use Maslow's hierarchy of needs to explain why a

- ***Hungry person steals?***
- ***Lonely student would join a club?***
- ***A successful musician would still perform music?***

I can compare and contrast motivational theories (e.g., drive reduction theory, arousal theory, general adaptation theory), including the strengths and weaknesses of each.

Motivational Theory	Strength	Weakness
Instinct Theory and Evolutionary Psychology	Evolutionary psychology helps explain behavioral similarities due to adaptations from our ancestral past.	Instinct theory explains animal behavior better than human behavior; humans have few true instincts.
Drive-Reduction Theory	Explains our motivation to reduce arousal by meeting basic needs, such as hunger or thirst.	Does not explain why some motivated behaviors *increase* arousal.
Optimal Arousal Theory	Explains that motivated behaviors may decrease *or* increase arousal.	Does not explain our motivation to address our more complex social needs.
Maslow's Hierarchy of Needs	Incorporates the idea that we have various *levels* of needs, including lower-level physiological and safety needs, and higher-level social, self-esteem, actualization, and meaning needs.	The order of needs may change in some circumstances. Evolutionary psychologists note the absence in the hierarchy of the universal human motives to find a mate and reproduce.

You have just been hired to coach a little league baseball team. Explain how you would use the Drive-Reduction theory, Optimal Arousal theory, Incentive theory, and Maslow's Hierarchy of Needs to motivate your team.

Test Tip

AP Psychology test writers have focused more attention on Maslow's hierarchy of needs than on instinct theory or drive reduction theory. You might use the initials PS BES as a mnemonic device to help you remember the sequence of Maslow's five needs. The "P" stands for Physiological, the "S" stands for Safety, the "B" stands for Belonging, the "E" stands for Esteem, and the "S" stands for Self-actualization.

Test Tip

Please Watch

Video: The Power of Motivation

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I can describe classic research findings in specific motivation systems (e.g., eating, sex, social)

HUNGER MOTIVATION

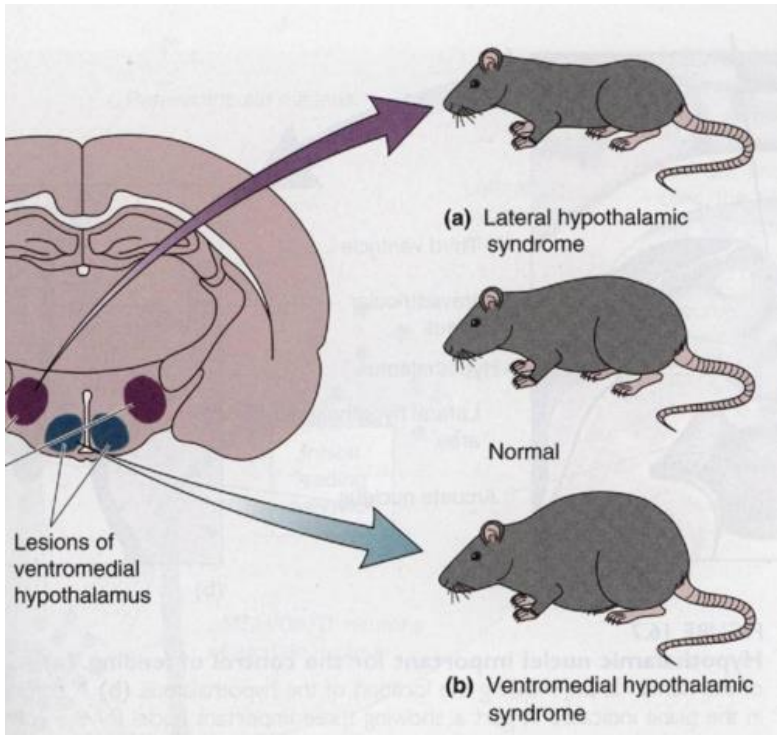
Why do we become hungry? Our bodies need food! However, some people eat even when their body has enough food, and some people do not eat when their body needs nourishment. Even a seemingly simple motivation such as hunger involves several biological, psychological, and social factors.

Biological Basis of Hunger

Our brain plays a role in the feeling of hunger. The ***hypothalamu***s monitors and helps to control body chemistry (including the ratio of ***glucose*** and insulin) and makes us feel hungry when we need to eat.

By using electric stimulation of animals' brains, psychologists have determined that different parts of the hypothalamus act in opposition to controlling hunger.

The ***lateral hypothalamus*** (hunger center) when stimulated causes the animal to eat.
Destruction of this area destroys hunger, and the animal will starve to death unless forced to eat.
Another part of the hypothalamus, the **ventromedial hypothalamus**, (satiety center) causes the animal to stop eating when it is stimulated. If this area is destroyed, the animal will eat and gain more and more weight unless it is deprived of food. If the hypothalamus functions normally, these two areas oppose each other and signal impulses to eat and stop eating at appropriate times.



The set-point theory describes how the hypothalamus might decide what impulse to send. This theory states that the hypothalamus wants to maintain a certain optimum body weight and body-fat level. Like a thermostat, the body defends this set-point weight by regulating feelings of hunger and body metabolism.

When we drop below that weight: the hypothalamus tells us we should eat and lowers our ***basal metabolic rate***—how quickly our body uses energy.

When our optimal weight is reached: The hypothalamus tells us to stop eating when that set point is reached and raises our metabolic rate to burn any excess food.

Opponents of the set point for weight theory believe that there are other psychological factors and that weight maintenance has more to do with learning and cognition than with the hypothalamus. In addition, the brain monitors the levels of insulin (released by the liver) and glucose, and this balance also influences our perception of hunger.

Psychological Factors in Hunger Motivation

Some of the reasons we get hungry have little to do with our brain and body chemistry. Some people for example are more motivated to eat by external food cues, such as attractiveness or availability of food. Other people are less affected by the presence and presentation of food and respond more often to internal hunger cues. To a certain degree, we all respond to both types of cues. External and internal cues as well as other factors in eating might be learned.

Learned taste aversions can have a tremendous effect on what foods make us hungry. If you eat clams and then happen to get nauseous, clams will probably be unappetizing to you even if you know the clams do not cause your sickness. This is caused by the ***Garcia effect*** and occurs whenever nausea is paired with either food or drink.

Culture and background affect our food preferences. The foods we are raised with are most likely the foods we find most appetizing, although new preferences are acquired, We usually prefer foods our family, region, and culture prefer because those are the foods we learned to like.

Eating Disorders

Many researchers seek to apply what we know about hunger and eating to treat individuals with harmful eating patterns.

The following lists the three most common eating disorders:

Bulimia

Bulimics eat large amounts of food in a short period (binging) and then get rid of the food (purging) by vomiting, excessive exercise, or the use of laxatives. Bulimics are obsessed with food and their weight. The majority of bulimics are women.

Anorexia nervosa

Anorexics starve themselves to below 85 percent of their normal body weight and refuse to eat due to their obsession with weight. The vast majority of anorexics are women.

The key difference between an anorexic and a bulimic is their weight. People who suffer from both disorders tend to be obsessed with food, and some anorexics even binge and purge. However, while anorexics are at least 15 percent below the typical weight of someone their age and size, bulimics' weight tends to be average or even slightly above.

Obesity

People with diagnosed obesity are severely overweight, often by over 100 pounds, and the excess weight threatens their health. Obese people typically have unhealthy eating habits rather than the food obsessions of the other two disorders. Some people may also be genetically predisposed to obesity.

Different cultures have drastically different rates of eating disorders, possibly due to the emphasis on body weight emphasized in the culture. Additionally, researchers also identify family history of eating disorders as a risk factor, indicating a potential genetic component. Researchers agree that eating disorders are influenced by a complex set of

Using a Biopsychosocial approach and information found in this reading provide various explanations as to why someone may be obese.

SEXUAL MOTIVATION

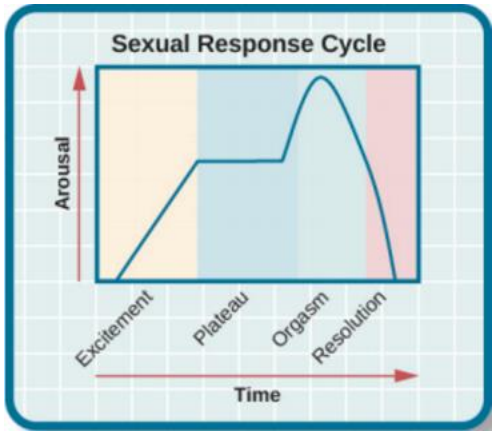
One of the primary tasks for most living organisms is reproduction. Sexual motivations are vital for the continuation of any species. Like hunger, sex is motivated by both biological and psychological factors.

Sexual Response Cycle

The famous lab studies done by ***William Masters*** **and** ***Virginia Johnson*** documented the sexual response cycle in men and women. Our sexual response progresses through four stages:

Masters and Johnson (1966) describe the human sexual response cycle as consisting of four phases:

Phase	Physiological Response
Excitement	Genitals become engorged with blood. Vagina expands secretes lubricant. Penis enlarges.
Plateau	Excitement peaks such as breathing, pulse and blood pressure.
Orgasm	Contractions all over the body. Increase in breathing, pulse & blood pressure. Sexual release.
Resolution	Engorged genitals release blood. Male goes through refractory phase. Women resolve slower.



Please Watch

Video: Let's talk about sex

Supplemental reading:

Reading #21

During the resolution phase, the male enters into a **refractory period** lasting from a few minutes to a day or more. During this period he is unable to have another orgasm.

Masters and Johnson sought not only to describe the human sexual response cycle but also the inability to complete it. ***Sexual dysfunctions*** are problems that consistently impair sexual arousal or functioning. Sexual dysfunctions include but are not limited to erectile disorder, premature ejaculation, and female organismic disorder. Men and women can be helped through therapy.

Biologically speaking the two most important sex hormones are ***testosterone*** (male) and ***estrogen*** (female). Although sex hormones influence sexual behavior, the impact is felt less in humans than in other mammals.

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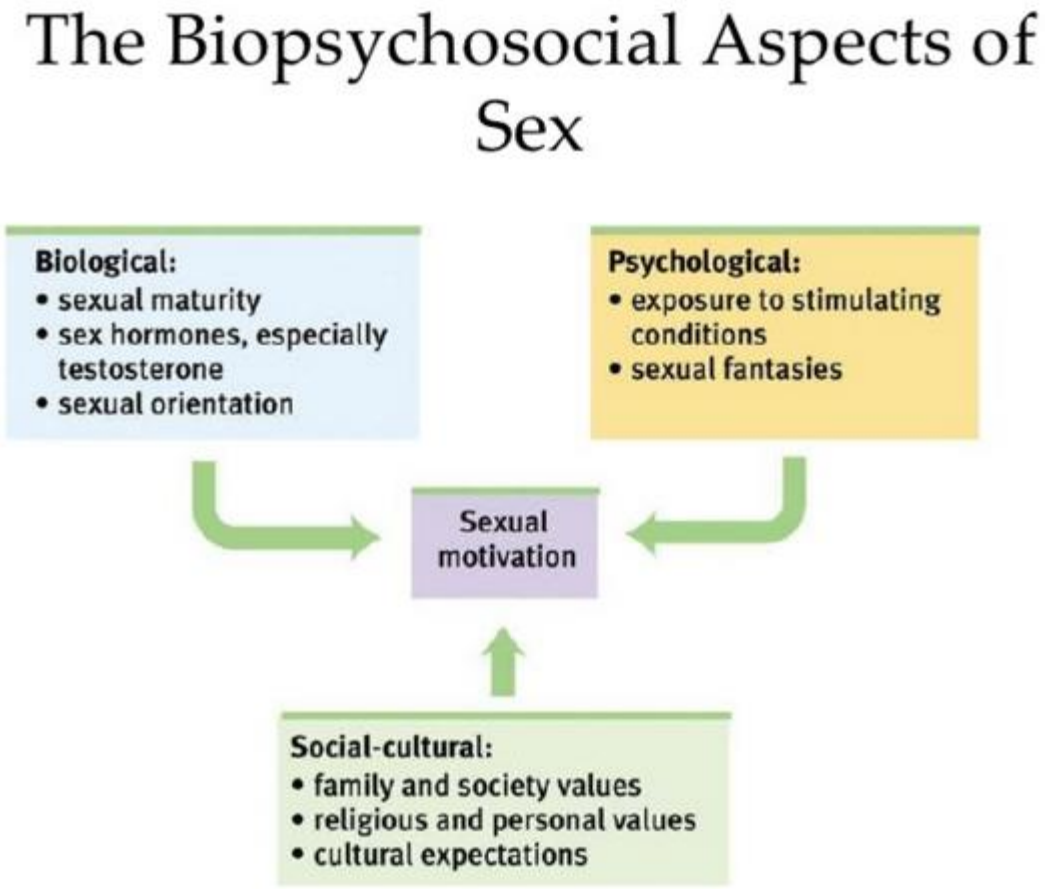
Psychological Factors in Sexual Motivation

Unlike many animals, our sexual desire is not motivated strictly by hormones. Many studies demonstrate that sexual motivation is controlled to a great extent by psychological rather than biological sources. Sexual desire can be present even when the capability to have sex is lost. Accident victims who lose the ability to have sex still have sexual desires. Erotic material can inspire sexual feelings and physiological responses in men and women, including elevated levels of hormones. The interaction between our physiology and psychology creates the myriad of sexual desires we see in society and ourselves.



How might creators of advertisement consider the biopsychosocial aspects of sex when creating an ad to be played during the Super bowl?

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SOCIAL MOTIVATION

What motivates the more complicated behaviors, such as taking the AP psychology exam? Your attitudes and goals, the society you live in, and the people you surround yourself with also affect what you are motivated to do.

Achievement Motivation

Achievement motivation is one theory that tries to explain the motivations behind these more complex behaviors. Achievement motivation examines our desires to master complex tasks and knowledge and to reach personal goals. Humans seem to be motivated to acquire new knowledge and master skills, sometimes regardless of the benefits of the skills or knowledge. People who have high achievement motivation tend to challenge themselves more than others.

Research studies by David McClelland (1917–1998) and others show that individuals with a high need for achievement (nAch) typically seek out tasks that are moderately difficult. Achievement motivation is learned early in life, typically from parents. Highly motivated people are willing to work long hours, overcome obstacles, and delay gratification to focus on a goal.

Achievement motivation takes different forms in individualistic and collectivistic cultures. In individualistic cultures such as the United States, achievement motivation emphasizes personal success. In contrast, in collectivistic cultures such as China, achievement motivation emphasizes promoting the status or well-being of the family and other relevant social groups

Achievement motivation is different from optimum arousal. Achievement motivation involves meeting personal goals and acquiring new knowledge or skills. Optimum arousal indicates the general level of arousal a person is motivated to seek, whether or not the arousal is productive in meeting a goal. Of course, these concepts can and will overlap.

EXTRINSIC MOTIVATION

When an individual's motivation is based upon external rewards or threats of punishment

Students who work for grades, athletes who work for scholarships, and employees who work for bonuses are all motivated by external rewards. Athletes who work hard so they will not be benched are motivated by the threat of extrinsic punishment. Extrinsically motivated individuals focus more on results as opposed to process. When extrinsic rewards and punishments are removed, behavior often falls to a lower level.

INTRINSIC MOTIVATION

When an individual's motivation is based upon personal enjoyment or satisfaction of a task or activity. Artists who paint for enjoyment, volunteers who donate time to community projects, and runners who strive to achieve their personal best time are all intrinsically motivated. Intrinsically motivated individuals often focus on the process

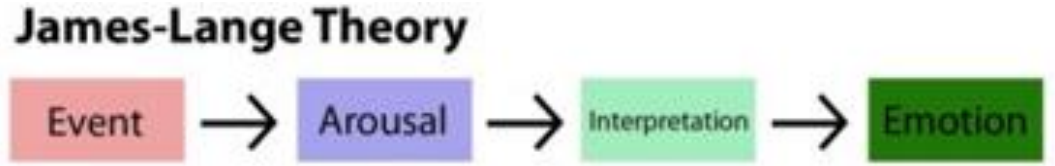
I can compare and contrast major theories of emotion (e.g., James–Lange, Cannon– Bard, Schachter two-factor theory).

THEORIES ABOUT EMOTION

Motivation and emotion are linked together and are difficult to separate. Both emotion and motivation influence each other and have an impact on how we behave. Psychologists have researched emotional states and created theories that try to explain our emotional experiences.

James-Lange Theory

William James and Carl Lange developed one of the oldest theories of emotion. They theorized that we feel emotion because of biological changes caused by stress. So when your friend jumps out of a shadow, your heart races and this physiological change causes you to feel afraid.

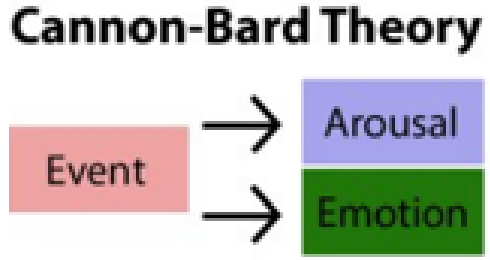


In the James-Lange theory, arousal immediately precedes emotion. James succinctly expressed this sequence when he wrote: "We feel sorry because we cry, angry because we strike, afraid because we tremble."

The James-Lange theory is mentioned for historical purposes. Current theories agree that biological changes are involved in emotion but they are not the only cause of them.

Cannon-Bard Theory

When your friend jumped out of the shadows why did your heart race? Sure it is possible that you were afraid but isn't also plausible that you are in love with your friend, embarrassed to see them, or happy to see them?

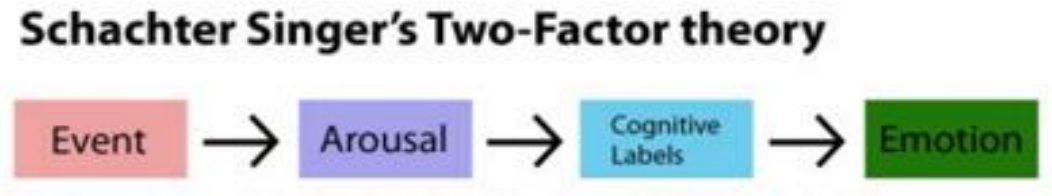


Walter Cannon and Philip Bard disagreed with an order of events proposed by the James-Lange theory. They showed that similar physiological changes correspond with drastically different emotional states.

The Cannon-Bard theory suggests that biological change and the cognitive awareness of the emotional state occur simultaneously. Cannon thought the thalamus (the message center) is responsible for both the biological change and the cognitive awareness of emotions. Cannon believed that when the thalamus receives information about our environment, it sends signals simultaneously to our cortex and our autonomic nervous system, creating the awareness of emotion and physiological change at the same time. Recent research shows Cannon overestimated the role of the thalamus in this process. Many other brain structures, such as the amygdala, are also involved.

Two-Factor Theory

Psychologists ***Stanley Schachter*** (1922–1997) and Jerome Singer agreed with James's view that physiological arousal is a key element in emotion Schachter's two-factor The theory explains emotional experiences in a more complete way than the previous two theories.



According to the two-factor theory, both our physical responses and our cognitive labels (our mental interpretations) combine to cause our emotional responses.

When your friend jumps out of a shadow your emotional response depends on both your heart racing and your cognitive label of the event as being scary.

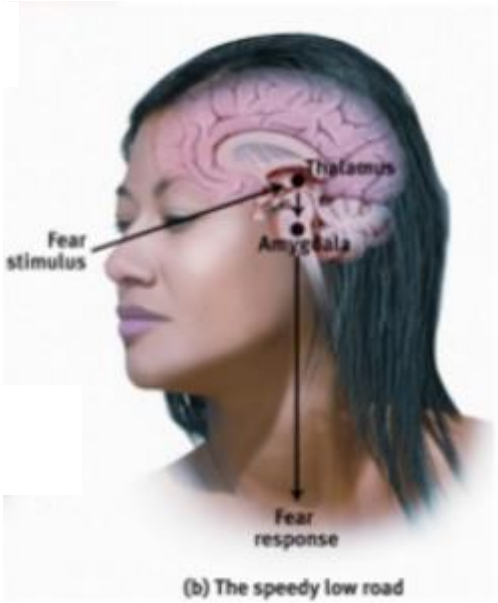
Schachter also notes that people who are already physiologically aroused experience more intense emotions than unaroused people when both groups are exposed to the same stimuli. In other words, if you just returned from a jog and your heart was racing, you would be more scared of your friend than if you were having a relaxing evening walk. Two-factor theory demonstrates that emotion depends on the interaction between two factors, biology, and cognition.

It is an hour prior to opening night of the fall play. The director speaks with different actors and actresses and some state that they are nervous while others state that they are excited. Use the Two-Factor theory to explain the two different answers.

Zajonc and LeDoux (low road)

The theory that simple emotions (fear, anger) are processed without thinking and emotion can occur before cognition takes place. Joseph LeDoux suggested that some emotions take the ***"low road"*** a neural shortcut that bypasses the cortex.

Stimulus→ Thalamus → Amygdala → Response

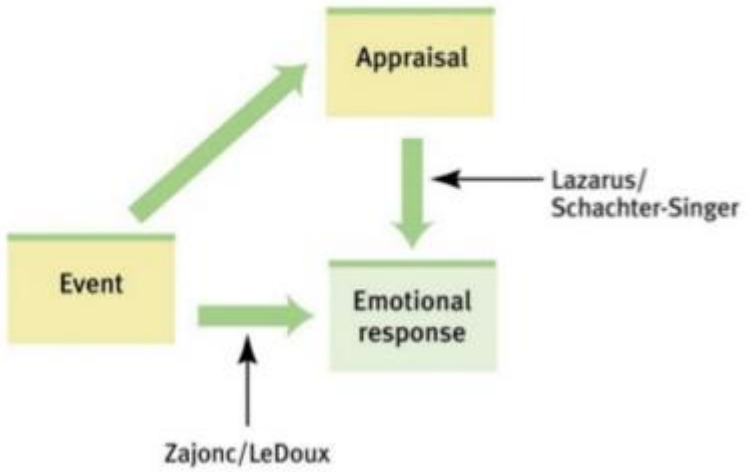


Richard Lazarus (high road)

Conceded that our brain processes vast amounts of information without our conscious awareness and that some emotional responses do not require conscious thinking. Much of our emotional life operates via automatic, low-road thinking.

But in order to know what we are reacting to the brain must appraise the situation. The appraisal may be effortless and we may not be conscious of it.

Two Routes to Emotion



Theory	Explanation of Emotions	Example
James-Lange	Our awareness of our specific bodily response to emotion-arousing stimuli	We observe our heart racing after a threat and then feel afraid.
Cannon-Bard	Bodily response + simultaneous subjective experience	Our heart races at the same time that we feel afraid.
Schachter-Singer	Two factors: general arousal + a cognitive label	We may label our arousal as fear or excitement, depending on context.
Zajonc; LeDoux	Instant, before cognitive appraisal	We automatically feel startled by a sound in the forest before we label it a threat.
Lazarus	Appraisal ("Is it danger or not?")—sometimes without our awareness—defines emotion	The sound is "just the wind."

Apply the ideas of Zajonc, LeDoux, and Lazarus to your reaction when your friend jumps out of the shadows.

Please Watch:

Video: EMOTION: FEELING ALL THE FEELS: CRASH COURSE PSYCHOLOGY #25

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Emotions and the Automatic Nervous System

1. ***The sympathetic nervous system***

A subdivision of the autonomic nervous system that arouses body responses. When you are emotionally aroused, the sympathetic nervous system causes blood pressure to surge and breathing and heart rates to accelerate. A perceived threat will trigger a fight-or-flight response that includes a dry mouth, dilating pupils, and heavy perspiration.

2***. The parasympathetic nervous system***

A subdivision of the autonomic nervous system that calms body responses. The parasympathetic nervous system works to calm the body and return it to a more relaxed state. The parasympathetic nervous system restores homeostasis immediately after a fight-or-flight response.

Tip – To remember that parasympathetic means calming.

Think "P" for Placid

Using your knowledge of the sympathetic and parasympathic nervous systems predict how a person's body reacts when they tell a lie.

Autonomic nervous system controls physiological arousal

Sympathetic division (arousing)		Parasympathetic division (calming)
Pupils dilate	EYES	Pupils contract
Decreases	SALVATION	Increases
Perspires	SKIN	Dries
Increases	RESPERATION	Decreases
Accelerates	HEART	Slows
Inhibits	DIGESTION	Activates
Secrete stress Hormones (EMERGENCY REACTION)	ADRENAL GLANDS	Decrease secretion of stress hormones (RELAXATION RESPONSE)

POLYGRAPH TESTING

1. The polygraph measures such sympathetic and parasympathetic nervous system responses as heart rate, breathing rate, and galvanic skin response.

2. Autonomic responses change under stress. Contrary to popular belief, the polygraph does not literally measure lying. Instead, it records arousal patterns associated with anxiety and fear. The inference that a person failing a polygraph test has told a lie is based upon the assumption that lying produces arousal of the sympathetic nervous system.

It is very important to note that lying is only loosely related to anxiety and fear. Some people remain calm when lying while others become nervous when telling the truth while being questioned in a stressful situation. As a result, polygraph tests cannot infallibly distinguish between innocent and guilty people.

NONVERBAL EXPRESSIONS OF EMOTION

Many psychologists researching emotions find that the ways we express emotion nonverbally (through facial expressions, etc.) are universal. No matter what culture we grew up in, we are likely to use the same facial expressions for basic emotions like happiness, sadness, anger, disgust, surprise, and fear. Researchers establish this by showing pictures of people experiencing these emotions to people from different cultures and asking them to label the emotions. Most people from cultures around the world are able to label these facial expressions very accurately. This area of research (sometimes called sociobiology) indicates that the facial expressions we make for basic emotions may be an innate part of our physiological makeup.

Psychologist ***Paul Ekman*** (b. 1934) has conducted the most extensive research on the facial expression of basic emotions. Ekman believes that the "facial language" for basic emotions is innate and thus universal. It is important to note that children who are born deaf and blind nonetheless exhibit facial expressions identical to those of other children.

Ekman and his fellow researchers argue that humans exhibit six basic emotions: happiness, sadness, fear, anger, surprise, and disgust. Each emotion is expressed by specific facial expressions. For example, a smile signals happiness on the faces of people across the world.

Try it yourself, guess the emotion of each face.

Angry
Disgusted
Fearful
Happy
Sad
Surprised

I can describe how cultural influences shape emotional expression, including variations in body language.

DISPLAY RULES

Although facial expressions for basic emotions are universal, cultural display rules influence how and when emotional responses are displayed.

In a classic experiment, Ekman showed American and Japanese students films depicting grisly images of surgical procedures. Both the American and Japanese students watched alone and in the presence of an official-looking scientist...

Nationality	Alone	In the presence of scientist
American facial expression	disgust	disgust
Japanese facial expression	disgust	disguised disgust with a smile

Ekman explained this finding by noting that the Japanese students were following an important display rule. In Japanese culture, it is not appropriate to display negative emotions that offend an authority figure

For more information on this study read **Supplemental Reading**: Study #22

The Effects of Facial Expression (facial feedback hypothesis)

Studies have revealed that expression not only conveys emotion, it may also amplify and regulate it.

In one study, people whose faces were moved into smiling or frowning positions experienced a change in mood.

Fake a relaxed smile, and you might feel better!

It's not just about faces. In one experiment, extending a 1) middle finger or 2) thumb while reading led to seeing characters with 1) hostility or 2) positive attitude.

The guy to the left, though forced into a smiling expression, ended up feeling happier than the other guy.

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I can discuss theories of stress and the effects of stress on psychological and physical well-being.

Stress is the process of appraising and responding to a threatening or challenging event. Stress arises less from events themselves than from how we appraise them.

Stress and emotion are intimately connected concepts. Psychologists study stress not only to further our understanding of motivation and emotion but also to help us with problems caused by stress. The term stress can refer to either certain life events (**stressors- the things that push our buttons**) or how we react to these changes in the environment **(stress reactions**). Studies try to describe our reactions to stress and identify factors that influence how we react to stressors.

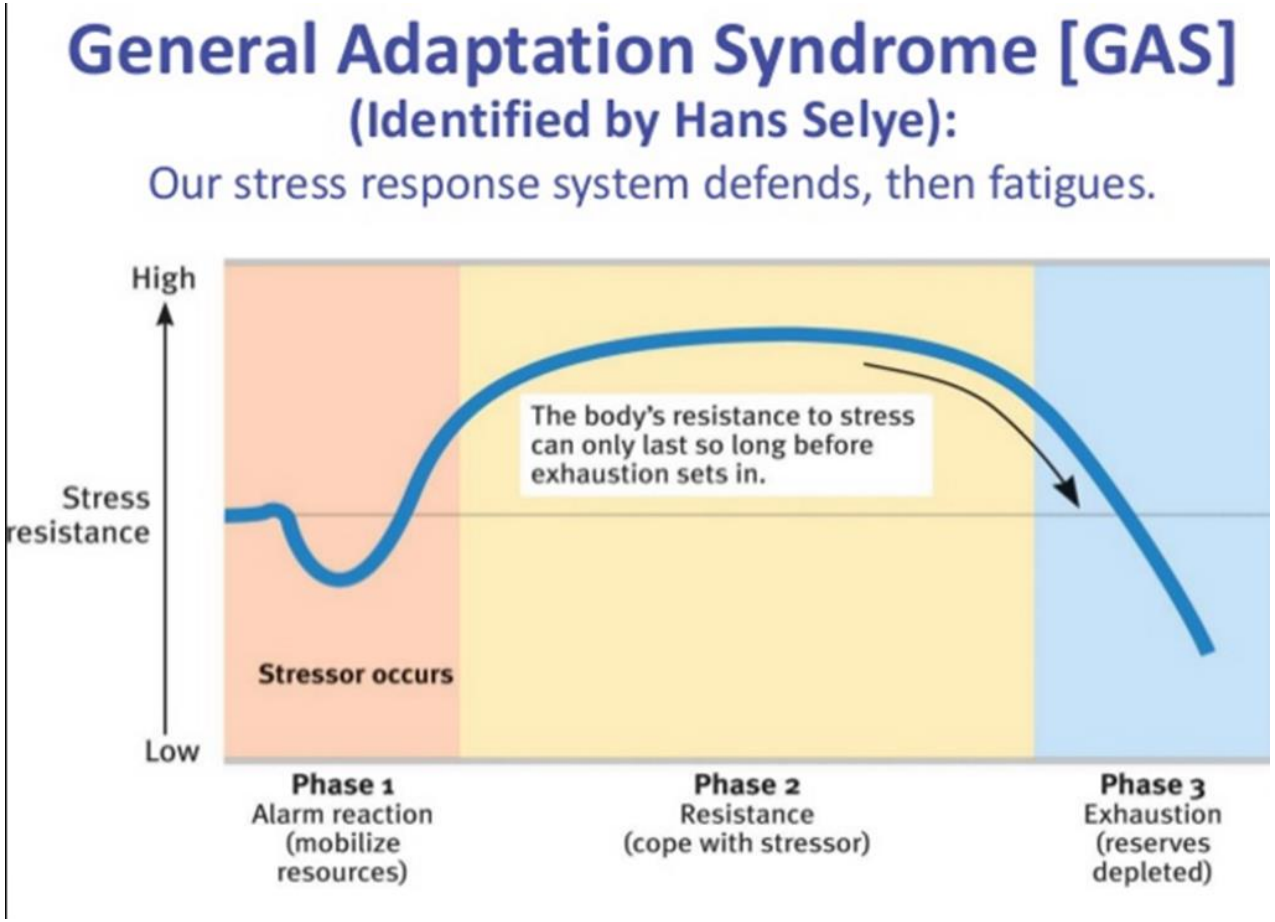
Selye's General Adaptation Syndrome

Hans Selye's general adaptation syndrome (GAS) describes the general response animals (including humans) have to a stressful event. Our response pattern to many different physical and emotional stresses is very consistent. Selye's GAS theory describes the following stages:

Alarm: Heart rate increases, blood is diverted away from other body functions to muscles needed to reaction. The organism readies itself to meet the challenge through activation of the sympathetic nervous system.

Resistance: The body remains physiologically ready (high heart rate, and so on). Hormones are released to maintain this state of readiness. If the resistance stage lasts too long, the body can deplete its resources.

Exhaustion: The parasympathetic nervous system returns our physiological state to normal. We can be more vulnerable to disease in this stage especially if our resources were depleted by an extended resistance stage.



Selye's model explains some of the documented problems associated with extended periods of stress. Excessive stress can contribute to both physical diseases, such as some forms of ulcers and heart conditions, and emotional difficulties, such as depression. Our bodies can remain ready for a challenge only so long before our resources are depleted and we are vulnerable to disease due to exhaustion.

People handle stress differently. Some people become withdrawn, pull back, and conserve energy. During extreme disaster, some people become paralyzed by fear. Another stress response, found especially in women, is to seek and give support. This ***tend-and-befriend response*** is demonstrated in the outpouring of help after natural disasters.

Interpersonal Conflicts

Approach-Approach conflict- The approach-approach conflict arises when an individual is faced with two or more equally attractive but mutually exclusive goals. He feels it difficult to select the better one out of these goals. For example, a person could have a choice between accepting two appealing jobs. The approach-approach conflict can be resolved with the help of cognitive dissonance.

Approach avoidance conflict: The approach-avoidance conflict is a situation where a single goal has both positive and negative characteristics. An individual is motivated to approach the goal by the positive characteristics but at the same time, the negative characteristics of the goal compel him to avoid it. An example could be given of a situation when a person is offered a promotion with a higher salary but away from his hometown.

Avoidance-avoidance approach: This conflict arises when an individual is faced with two alternatives, both of which have negative aspects. Both alternatives are equally unattractive for the individual. An example could be given of an individual who dislikes his present job but the alternative of resigning from his job and looking for a new job is also equally unattractive for him. Under normal circumstances, such conflict can be easily resolved by avoiding both alternatives but in some situations, it may not be possible to avoid both alternatives. Under such a situation the goal that has lesser negative elements should be selected.

Stress and illness

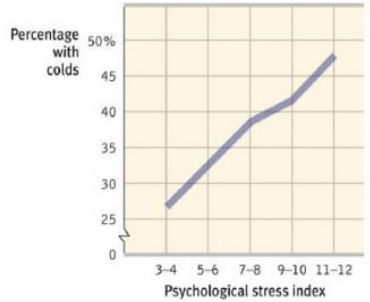
Psychophysiological illness literally, "mind-body" illness; refers to any stress-related physical illness, such as hypertension and some headaches.

Stress often compromises our immune system leaving us vulnerable to illness. The study of ***psychoneuroimmunology*** focuses on how the psychological, neural, and endocrine processes together affect the immune system and resulting health.

White blood cells that are part of the immune system are called ***lymphocytes***. Lymphocytes form in the thymus and other lymphatic tissue. The adrenal glands regulate the secretion of stress hormones, which suppress the disease-fighting lymphocytes. Immune suppression occurs more often in animals who are under stress.

Stress and Colds

People with the highest life stress scores were also the most vulnerable when exposed to an experimental cold virus.



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Please watch Video: EMOTION, STRESS AND HEALTH: CRASH COURSE PSYCHOLOGY #26

Measuring Stress

Psychologists ***Thomas Holmes and Richard Rahe*** designed one of the first instruments to measure stress. Their social readjustment rating scale (SRRS) measured stress using life-change units (LCUs). A person taking the SRRS reported changes in her or his life, such as selling a home or changing jobs. Different changes in life were assigned different LCUs.

A person who scored very high on the SRRS is more likely to have stress-related diseases than a person with a low score. Other researchers have designed more sophisticated measures of stress that take into account individual perceptions of how stressful events are and whether the stresses are pleasant or unpleasant. These more precise measures of stress show an even higher correlation with disease than the original stress measures did.

Life Event	Value	Life Event	Value
Death of Spouse	100	Trouble with In-Laws	29
Divorce	73	Spouse Begins or Stops Work	26
Marital Separation	65	Begin or End School	26
Jail Term	63	Change in Living Conditions	25
Death of Close Family Member	63	Revision of Personal Habits	24
Personal Injury or Illness	53	Trouble with Boss	23
Marriage	50	Change in Work Hours	20
Fired at Work	47	Change in Residence	20
Marital Reconciliation	45	Change in Schools	20
Retirement	45	Change in Recreation	19
Change in Health of Family	44	Change in Church Activities	19
Pregnancy	40	Change in Social Activities	18
Sex Difficulties	39	Change in Sleeping Habits	16
Gain New Family Member	39	Change in Eating Habits	15
Business Readjustment	39	Vacation	13
Change in Financial State	38	Christmas	12
Death of a Close Friend	37	Minor Violations of the Law	11

SSRS- Holmes & Rahe

- If a person has less the 150 life change units they have a 30% chance of suffering from stress.
- 150 - 299 life change units equates to a 50% chance of suffering from stress.
- Over 300 life units means a person has an 80% chance of developing a stress related illness.

Supplemental Reading: **Study #23**

Combining what you know about the impact of stress on lymphocytes, G.A.S. and the SRRS develop a theory that explains why it is common for a college freshman to get sick after the first semester.

Stress is closely linked to ***coronary heart disease***, North America's leading cause of death. Coronary heart disease refers to the clogging of the vessels that nourish the heart muscle.

In some classic studies, Meyer Friedman, Ray Rosenman, and their colleagues tested the idea that stress increases vulnerability to heart disease.

They did this by measuring the blood cholesterol levels and clotting speed of 40 U.S. male accountants at different times of the year. The results demonstrated that during their busy times of the year, cholesterol and clotting levels rose to dangerously high levels. They would return back to normal during slower times.

During the study, the psychologist interviewed the men. They categorized them into two types, type A and Type B.

Type A: Friedman and Rosenman's term for competitive, hard-driving, impatient, verbally aggressive, and anger-prone people.

Type B: Friedman and Rosenman's term for easygoing, relaxed people.

Years of studies have demonstrated that type A people are more prone to coronary issues.

Supplemental reading: Study #27

Over-learning activities:

Watch the following lectures

JOHN GABRIELI M.I.T. LECTURE 15: EMOTION AND MOTIVATION

JOHN GABRIELI M.I.T. LECTURE 19: STRESS

Developmental Psychology

Developmental psychology deals with the behavior of organisms from conception to death and examines the processes that contribute to behavioral change throughout the life span. The major areas of emphasis in the course are prenatal development, motor development, socialization, cognitive development, adolescence, and adulthood.

Myers Modules 45-54 pages 460-553

7 to 9% of AP Course

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Objectives

- ☐ I can discuss the interaction of nature and nurture (including cultural variations) in the determination of behavior.
- ☐ I can explain the process of conception and gestation, including factors that influence successful fetal development (e.g., nutrition, illness, substance abuse).
- ☐ I can discuss maturation of motor skills.
- ☐ I can describe the influence of temperament and other social factors on attachment and appropriate socialization.
- ☐ I can explain the maturation of cognitive abilities (e.g., Piaget's stages, information processing).
- ☐ I can compare and contrast models of moral development (e.g., Kohlberg, Gilligan).
- ☐ I can discuss maturational challenges in adolescence, including related family conflicts.
- ☐ I can explain how parenting styles influence development.
- ☐ I can characterize the development of decisions related to intimacy as people mature.
- ☐ I can predict the physical and cognitive changes that emerge as people age, including steps that can be taken to maximize function.
- ☐ I can describe how sex and gender influence socialization and other aspects of development.
- ☐ I can identify key contributors in developmental psychology (e.g., Mary Ainsworth, Albert Bandura, Diana Baumrind, Erik Erikson, Sigmund Freud, Carol Gilligan, Harry Harlow, Lawrence Kohlberg, Konrad Lorenz, Jean Piaget, Lev Vygotsky).

Define and Apply the following the following Vocab and/or concepts

developmental psychology
zygote
embryo
fetus
teratogens
fetal alcohol syndrome (FAS)
habituation
maturation
cognition
schema
assimilation
accommodation
sensorimotor stage
object permanence
preoperational stage
conservation
egocentrism
theory of mind

autism spectrum disorder (ASD)
concrete operational stage
formal operational stage
stranger anxiety
attachment
critical period
imprinting
temperament
basic trust
self-concept
gender
aggression
gender role
role
gender identity
social learning theory
gender typing
transgender

adolescence
identity
social identity
intimacy
emerging adulthood
X chromosome
Y chromosome
testosterone
puberty
primary sex characteristics
secondary sex characteristics
menarche
sexual orientation
menopause
cross-sectional study
longitudinal study
social clock

Key People

Mary Ainsworth
Albert Bandura
Diana Baumrind
Erik Erikson
Sigmund Freud
Carol Gilligan,
Harry Harlow
Lawrence Kohlberg
Konrad Lorenz
Jean Piaget
Lev Vygotsky

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I can discuss the interaction of nature and nurture (including cultural variations) in the determination of behavior.

Developmental psychology is the study of age-related changes in behavior and mental processes from conception to death. Consequently, developmental psychology involves many concepts traditionally included in other areas of psychology. Some psychologists consider development psychology to be an applied, rather than pure, research topic. That is, developmental psychologists apply research from other areas of psychology to special topics involving maturation.

NATURE VERSUS NURTURE

One way to organize the information included in the developmental psychology section is to think about one of the basic controversies: nature versus nurture. This chapter discusses influences on development from nature (genetic factors) first and then moves on to theories about nurture (environmental factors).

Led by John Locke (1632–1704), early philosophers argued that at birth our minds were a tabula rasa or blank slate. Proponents of the nurturist position continue to argue that development occurs through learning and personal experience.

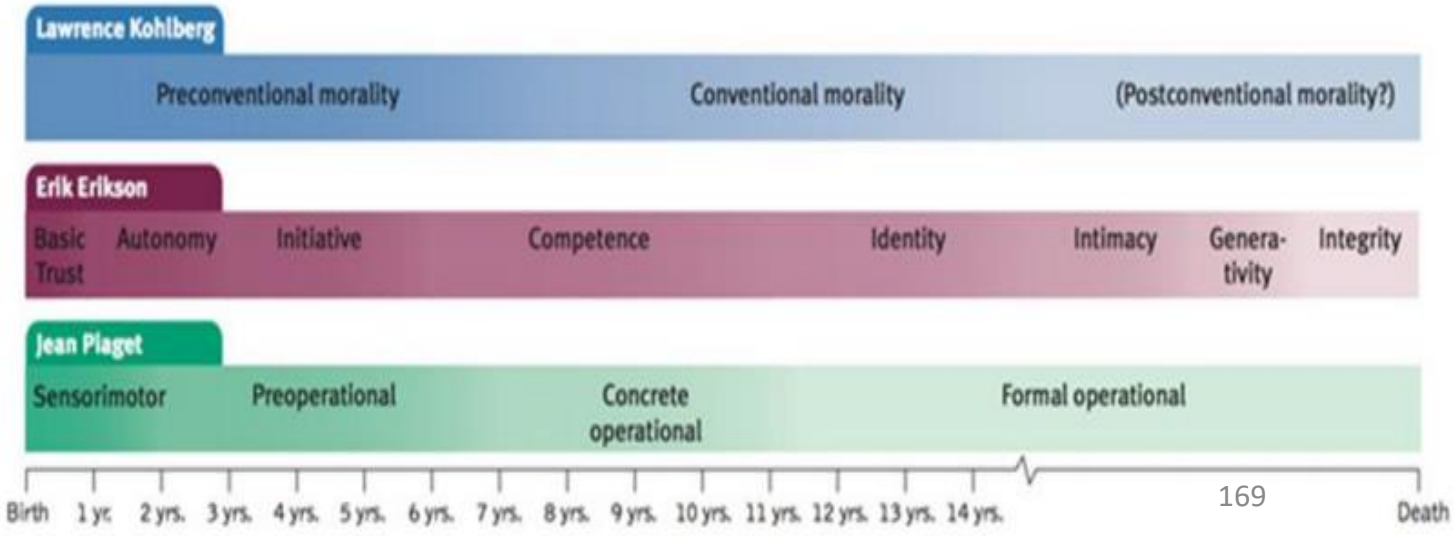
Proponents of the modern nature position emphasize the role of maturation, a sequence of genetically programmed processes of growth and development that occur over time. They also point to the importance of critical periods in maturation. A critical period is a specific time of great sensitivity to age-related learning that shapes the capacity for future cognitive development.

CONTINUITY VERSUS DISCONTINUITY

Psychologists who take the continuity approach argue that development is a continuous process as new abilities, skills, and knowledge are added at a gradual pace.

In contrast, many psychologists argue that development occurs through a series of distinct stages. Stage theorists devote particular attention to critical periods.

Studies in developmental psychology are usually either cross-sectional or longitudinal. ***Cross-sectional research*** uses participants of different ages to compare how certain variables may change over the life span**.**
Longitudinal research takes place over a long period Instead of sampling from various age groups as in cross-sectional research, a longitudinal study that examines one group of participants over time.



I can explain the process of conception and gestation, including factors that influence successful fetal development (e.g., nutrition, illness, substance abuse).

PRENATAL INFLUENCES ON DEVELOPMENT

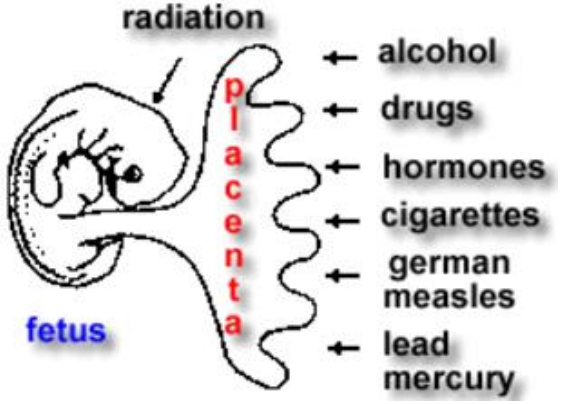
THE PRENATAL PERIOD

The prenatal period begins with conception and ends nine months later with birth. During the first ten days after conception, the fertilized egg or ***zygote*** becomes an ***embryo***. During the embryonic stage, cells begin to divide and differentiate into organ systems. After 8 weeks, the developing embryo becomes a ***fetus***. The fetal stage lasts until birth. During this time, neural cells are produced at the astounding rate of 250,000 per minute.

Genetics

In the chapter about biological influences on behavior, you reviewed basic information about how hereditary traits are passed on from parents to their children (see Biological unit for a review). Many developmental psychologists investigate how our genes influence our development. Specifically, researchers might look at identical twins to determine which traits are most influenced by genetic factors. Our genes also help determine what abilities we are born with, such as our reflexes and our process of developing motor skills.

Teratogens



The environment can also have profound influences on us before we are born. Certain chemicals or agents (called ***teratogens***) can cause harm if ingested or contracted by the mother. The placenta can filter out many potentially harmful substances, but teratogens pass through this barrier and can affect the fetus in profound ways.

One of the most common teratogens is alcohol. Even small amounts of alcohol can change the way the fetal brain develops. Children of alcoholic mothers who drink heavily during pregnancy are at high risk for ***fetal alcohol syndrome (FAS)***. Children born with FAS have small, malformed skulls and mental retardation. Researchers are also investigating a less severe effect of moderate drinking during pregnancy, the fetal alcohol effect. These children typically do not show all the symptoms of FAS but may have specific developmental problems later in life, such as learning disabilities or behavioral problems.

Alcohol is certainly not the only teratogen. Unlike alcohol, other psychoactive drugs, like cocaine and heroin, can cause newborns to share their parent's physical drug addiction. The serious withdrawal symptoms associated with these addictions can kill an infant. Some polluting chemicals in the environment can cause abnormal infant development. Certain bacteria and viruses such as HIV/AIDS are not screened by the placenta and may be contracted by the fetus.

I can discuss maturation of motor skills.

Motor and Sensory Maturation

Maturation refers to the biological growth processes that enable orderly changes in behavior, relatively uninfluenced by experiences.

Reflexes

Researchers now know that humans are far from blank slates when we are born. All babies exhibit a set of specific reflexes, which are specific, inborn, automatic responses to certain specific stimuli. Some important reflexes humans are born with are listed below:

Rooting	When touched on the cheek, a baby will turn their head to the side where it felt the touch and seek to put the object into its mouth.
Sucking	When an object is placed into the baby's mouth, the infant will suck on it. (The combination of rooting and sucking reflexes helps babies eat.)
Grasping	If an object is placed into a baby's palm or foot pad, the baby will try to grasp the object reflex with his or her fingers or toes.
Moro reflex	When startled, a baby will fling his or her limbs out and then quickly retract them, making himself or herself as small as possible.
Babinski	When a baby's foot is stroked, he or she will spread the toes. reflex

The Newborn's Senses

In addition to inborn reflexes, humans are also born equipped with sensory apparatus. Newborns can respond to sweet, salty, and bitter tastes. Preferences in tastes and smells will change as we develop (we might learn to like the smell of fish or hate it), but babies are born with the basic preferences in place.

Sight becomes our dominant sense as we age, but when we are born, hearing is the dominant sense due to babies' poor vision. Babies are born almost legally blind. They can see well 8–12 inches in front of them, but everything beyond that range is a blur. Their vision improves quickly as they age, improving to normal vision (barring any vision problems) by the time they are about 12 months old.

As mentioned hearing is the dominant sense when we are born. Newborns are attracted to female voices and minutes after birth, a baby will try to turn his or her head toward the mother's voice.

Motor Development

Barring developmental difficulties, all humans develop the same basic motor skills in the same sequence, although the age we develop them may differ from person to person. Our motor control develops as neurons in our brain connect with one another and become myelinated. Research shows that most babies can roll over when they are about 5-1/2 months old, stand at about 8–9 months, and walk by themselves after about 15 months. These ages are very approximate and apply to babies all over the world. While environment and parental encouragement may have some effect on motor skills, the effect is slight.

I can describe the influence of temperament and other social factors on attachment and appropriate socialization.

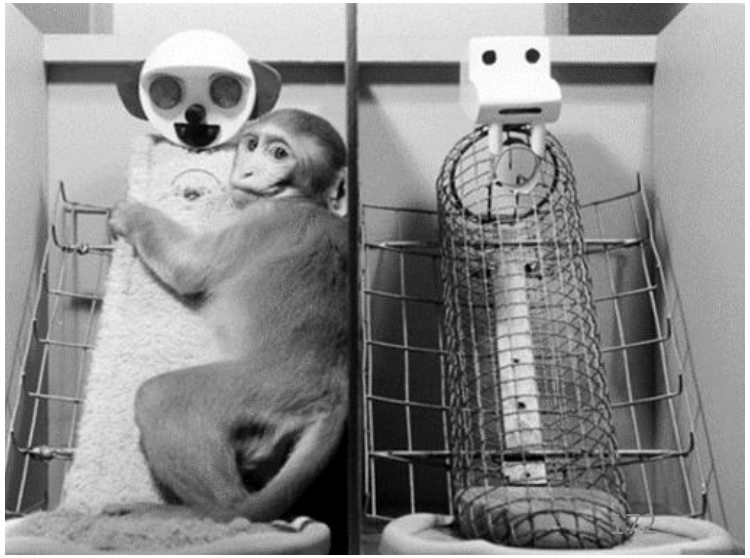
At about 8 months, babies develop **stranger anxiety**, children this age have developed schemas for familiar faces, when they can't assimilate the new faces they become distressed.

A child's ***temperament*** is how he reacts to the world, new situations, people, and experiences. ***Attachment*** is an infant's enduring emotional bond to his parents or primary caregivers. Both of these factors affect children not only in infancy but throughout their lives. Temperament is a consistent aspect of a person's behavior over time, and their style of attachment to their primary caregiver often shapes the quality of platonic and romantic relationships with others as they age. A child's temperament can affect his parent's reactions and feelings toward him, and subsequently his attachment style.

Attachment Theory

After birth, uncountable environmental influences begin to affect how we develop. Some species respond in very predictable ways to environmental stimuli: Biologist ***Konrad Lorenz*** established that some infant animals (such as geese) become attached ("***imprint***") on individuals or even objects they see during a ***critical period*** after birth. Certainly one of the most important aspects of babies' early environment is the relationship between parent(s) and child. Some researchers focus on how ***attachment***, or the reciprocal relationship between caregiver and child, affects development. Both body contact and familiarity play a key role in the development of attachment. Two significant researchers in this area demonstrate some of the basic findings regarding attachment.

In the 1950s, researcher ***Harry Harlow*** raised baby monkeys with two artificial wire frame figures made to resemble mother monkeys. One mother figure was fitted with a bottle the infant could eat from, and the other was wrapped in a soft material. Harlow found that infant monkeys when frightened preferred the soft mother figure even over the figure that they fed from. When the infants were surprised or stressed, they fled to the soft mother for comfort and protection. Harlow's studies demonstrated the importance of physical comfort in the formation of attachment with parents. As Harlow's infant monkeys developed, he noticed that the monkeys raised by the wire frame mothers became more stressed and frightened than monkeys raised with real mothers when put into new situations. The deprivation of an attachment with a real mother had long-term effects on these monkeys' behavior.



Please Watch: MONKEYS AND MORALITY

For more information on Harlow's experiment read: study 17

Mary Ainsworth researched the idea of attachment by placing human infants into novel situations. Ainsworth observed infants' reactions when placed into a strange situation: their parents left them alone for a short period and then returned. She divided the reactions into three broad categories:

1. Infants with secure attachments (about 66 percent of the participants) confidently explore the novel environment while the parents are present, are distressed when they leave, and come to the parents when they return.

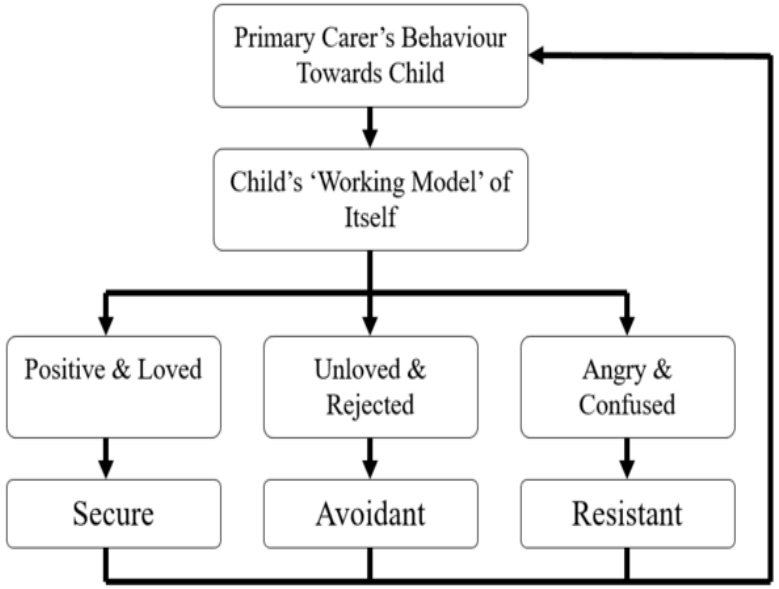
2. Infants with avoidant attachments (about 21 percent of the participants) may resist being held by their parents and will explore the novel environment. They do not go to their parents for comfort when they return after an absence.

3. Infants with anxious/ambivalent attachments (also called resistant attachments, about 12 percent of the participants) have ambivalent reactions to their parents. They may show extreme stress when the parents leave but resist being comforted by them when they return.

Is attachment a result of parenting style or genetics influenced by temperament? Most parents of multiple children will tell you kids are often completely different.

Current research indicates that the quality of attachment during infancy has a variety of long-term effects. Securely attached infants tend to be well-adjusted, form successful social relationships, and perform better at school. Insecurely attached infants tend to form shallow relationships, appear withdrawn, and sometimes display an insatiable need for affection.

Attachment type	Caregiver Behaviours	Child Behaviours
Secure	• React quickly and positively to child's needs • Responsive to child's needs	• Distressed when caregiver leaves • Happy when caregiver returns • Seek comfort from caregiver when scared or sad
Insecure – avoidant	• Unresponsive, uncaring • Dismissive	• No distress when caregiver leaves • Does not acknowledge return of caregiver • Does not seek or make contact with caregiver
Insecure – ambivalent	• Responds to child inconsistently	• Distress when caregiver leaves • Not comforted by return of caregiver
Insecure - disorganized	• Abusive or neglectful • Responds in frightening, or frightened ways	• No attaching behaviours • Often appear dazed, confused or apprehensive in presence of caregiver



Test Tip

Harlow's famous experiments are vivid and easy to remember. In contrast, Mary Ainsworth's Strange Situation experiments are easy to skim over or ignore. Don't make this mistake. Ainsworth's attachment research was featured in a 2008 free-response question and in recent multiple-choice questions. Be sure you can explain Ainsworth's research procedure as well as the differences between secure and insecure attachments.

Test Tip

Please Read: [Developing a strong, beneficial relationship with your child]

I can explain how parenting styles influence development.

Parenting Styles

Parents' interaction with their children influences the way we develop and can be categorized in similar ways. Developmental psychologist ***Diana Baumrind*** researched parent-child interactions and described three overall categories of parenting styles.

Authoritarian parents set strict standards for their children's behavior and apply punishments for violations of these rules. Obedient attitudes are valued more than discussions about the rationale behind the standards. Punishment for undesired behavior is more often used than reinforcement for desired behavior. If your parents were authoritarian and you came in 15 minutes after your curfew, you might be grounded from going out again for the rest of the month without explanation or discussion.

Permissive parents do not set clear guidelines for their children. The rules that do exist in the family are constantly changed or are not enforced consistently. Family members may perceive that they can get away with anything at home. If your parents were permissive and you came in 15 minutes after your curfew, your parents' reaction would be unpredictable. They may not notice, not seem to mind, or threaten you with a punishment that they never follow through on.

Authoritative parents have set, consistent standards for their children's behavior, but the standards are reasonable and explained. The rationale for family rules is discussed with children old enough To understand them. Authoritative parents encourage their children's independence but not past The point of violating rules. They praise as often as they punish. In general, explanations are Encouraged in an authoritative house, and the rules are reasonable and consistent. If your parents Were authoritative and you came in 15 minutes after your curfew, you would already know the Consequences of your action. You would know what the family rule was for breaking curfew, why The rule existed, and what the consequences were, and your parents would make sure you suffered the consequences!

Authoritarian and Authoritative are easily confused. The difference between the two words is the "ive" at the end. It may help to think of Authoritative as a little more "give and take."

Studies show that the authoritative style produces the most desirable and beneficial home environment. Children from authoritative homes are more socially capable and perform better academically, on average. The children of permissive parents are more likely to have emotional control problems and are more dependent. Authoritarian parents' children are more likely to distrust others and be withdrawn from peers. These studies indicate another way in which our upbringing influences our development. Researchers agree that parenting style is certainly not the whole or final answer to why we develop the way we do (and the research is correlational, not causational). However, it is a key influence along with genetic makeup, peer relationships, and other environmental influences on thought and behavior.

I can predict the physical and cognitive changes that emerge as people age, including steps that can be taken to maximize function

STAGE THEORIES

Besides nature versus nurture, one of the other major controversies in developmental psychology is the argument about continuity versus discontinuity. Do we develop continually, at a steady rate from birth to death, or is our development discontinuous, happening in fits and starts with some periods of rapid development and some of the relatively little change? Biologically, we know our development is somewhat discontinuous. We grow more as an infant and during our adolescent growth spurt than at other times in our lives. However, what about psychologically? Do we develop our thought and behavior continuously or discontinuously?

Several theorists concluded that we pass through certain stages in the development of certain psychological traits, and their theories attempt to explain these stages. Stage theories are, by definition, discontinuous theories of development. You may notice that some stage theorists such as Sigmund Freud and Erik Erikson, base their stages on psychoanalytic theories and are therefore less scientifically verifiable than the other stage theories. They are included because their stages are still often used to describe how we develop in specific areas and are of historic importance.

Test Tip

Each stage theory describes how different aspects of thought and behavior develop. One stage theory does not necessarily contradict another even though they may say different things about a child of the same age. Be careful when you are contrasting stage theories. Comparing one against another may be like comparing apples with oranges.

Test Tip

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I can explain the maturation of cognitive abilities (e.g., Piaget's stages, information processing).

PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

Jean Piaget (1896–1980) was a Swiss psychologist whose theories of cognitive development have had a profound impact on our understanding of how the mind develops. One noted developmental psychologist underscored Piaget's importance when he declared, "Assessing the impact of Piaget on developmental psychology is like assessing the impact of Shakespeare on English literature . . ."

Before Piaget's research, many assumed that a child's mind was simply a small-scale replica of an adult's mind. Piaget's life-long observations convinced him that children are not less intelligent than adults. They simply think differently. Piaget's stage theory describes how infants, children, and adolescents use distinctively different cognitive abilities to understand the world. Piaget identified four distinct stages of cognitive development. Each stage marks a fundamental change in how a child thinks and understands the world.

KEY CONCEPTS

Schema

A schema is a concept or framework that organizes and interprets information. For example, young children develop a schema for a dog that includes a 4 legged animal that has hair, ears, and a tail

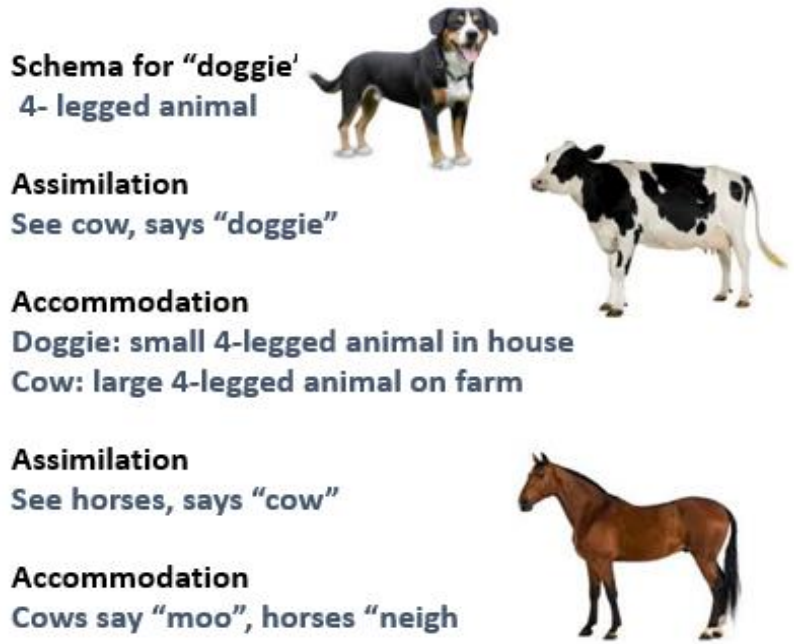
Assimilation

In Piaget's theory, assimilation is the process of absorbing new information into an existing schema. For example, when a child sees a cow, that also has four legs, hair, ears, and a tail they will call it a dog.

Accommodation

In Piaget's theory, accommodation is the process of adjusting old schemas or developing new ones to incorporate new information. For example, when children become older, they realize that animals and other dogs exist, they may adjust their schema by saying dogs live inside and cows live outside. Later they may call other large outside animals cows.

Assimilation vs. Accommodation



Piaget thought humans go through this process of schema creation, assimilation, and accommodation as we develop cognitively. His cognitive development theory describes how our thinking progresses through four stages:

The Sensorimotor stage (birth to approximately two years old)- The sensorimotor stage begins at birth and lasts until "significant" language acquisition begins at about age 2. During this stage, infants use their senses and motor activities to explore their environment and develop new schemas.

At the beginning of this stage, infants lack ***object permanence***—the understanding that objects and people continue to exist even when they cannot be seen, heard, or touched. For example, if a ball rolls under a bed, it is literally out of the infant's sight and thus out of the infant's mind.

During their second year, children develop the ability to form internal images or mental representations of objects. Popularly called the "mind's eye," this new ability enables the child to develop object permanence. When babies start to look for or somehow acknowledge that objects do exist when they cannot see them, they have object permanence.

The Preoperational stage (2 to 7 years old)- In Piaget's theory, the preoperational stage usually lasts from age 2 to age 7. It is important to understand that Piaget uses the word "operations" to refer to logical mental activities. So the "preoperational" stage is another way of saying the pre-logical stage.

Symbolic thought - Acquiring object permanence prepares a child to start to use symbols to represent real-world objects. This ability is the beginning of language, the most important cognitive development of this stage. As children expand their vocabulary they begin to develop the ability to engage in symbolic thought. Symbolic thought refers to the ability to use words, images, symbols, and play to represent the world.

Egocentrism- Preoperational children often display egocentric thinking. In Piaget's theory, egocentrism does not mean being selfish or conceited. Instead, egocentrism is the inability to consider another person's point of view. Because of egocentrism, preoperational children assume that others see, hear, and think exactly as they do. For example, a young girl believes that a doll would make an ideal birthday present for her grandfather. After all, that is exactly what she wants for her birthday.

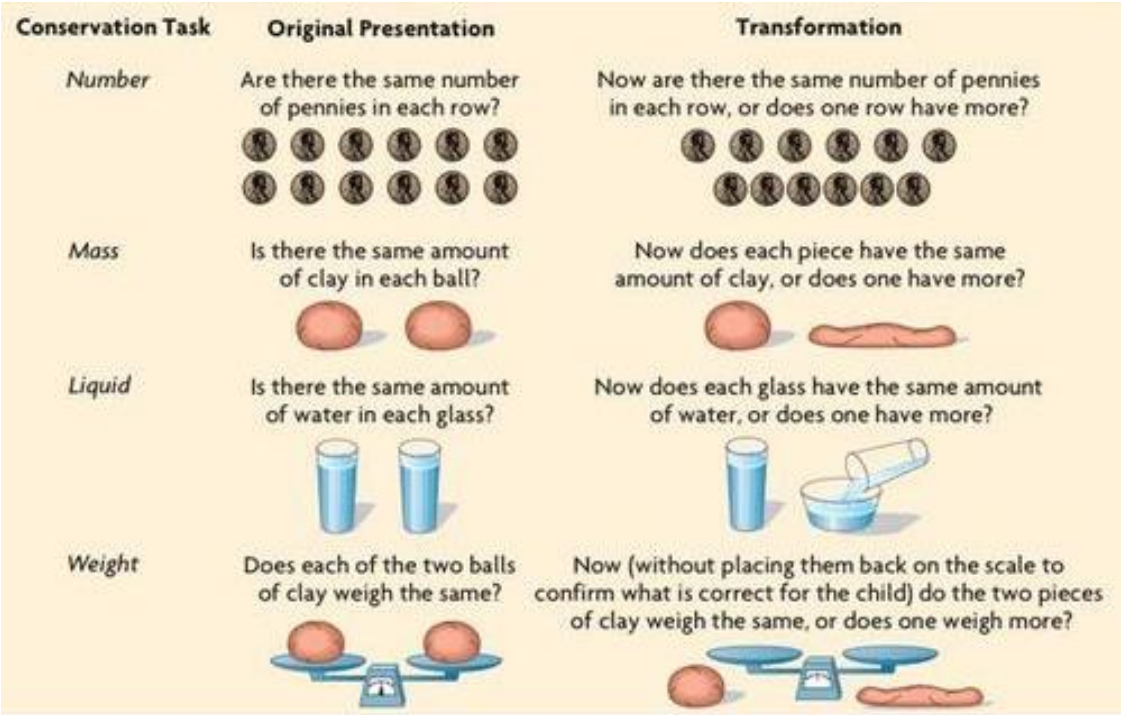
Animistic thinking - Children in the preoperational stage believe that inanimate objects, such as the sun, flowers, and clouds, have feelings

Irreversibility - Irreversibility is the child's inability to mentally reverse a sequence of events or logical operations. For example, Jack and Olivia are each given identical cookies. Olivia breaks her cookie into several pieces and boasts, "Now I have more to eat than you!" Preoperational Jack is jealous because he cannot mentally reverse the process and think, "If Olivia puts her pieces back together, her cookie would be the same as mine."

Centration - Why can't Jack understand that Olivia's divided cookie is the same as his whole cookie? According to Piaget's theory, preoperational Jack can only focus, or center, on just one aspect of a situation. Because of centration, Jack ignores the equal *volume of the cookies and instead focuses on the number of pieces.*

The Concrete operational stage (7-11) - The concrete operational stage lasts from roughly age 7 to age 11. During this stage, children can apply logical thought to concrete objects and events. During the concrete operations stage, children learn to think more logically about complex relationships between different characteristics of objects. Piaget categorized children in the concrete operations stage when they demonstrated knowledge of concepts of conservation.

Conservation - In the preoperational stage, children cannot reverse mental steps. However, in the concrete operational stage, children can grasp the concept of reversibility. Concrete operational children understand the principle of conservation. In Piaget's theory, conservation is the understanding that two equal quantities remain equal even though their form or appearance is rearranged. Concrete operational Jack would now understand that the broken pieces of Olivia's cookie are, in fact, equal to his whole cookie.



The Formal operation stage (12 years through adulthood) - This final stage of Piaget describes adult reasoning. Piaget theorized that not all of us reach formal operations in all areas of thought. Formal operational reasoning is abstract reasoning. We can manipulate objects and contrast ideas in our minds without Physically seeing them or having real-world correlates.

A person in Piaget's formal-operations stage can reason from a hypothesis. To test for Formal-operational thought, you might ask a child, "How would you be different if you Were born on a planet that had no light?" A child in the preoperational or The concrete-operational stage would have trouble answering the question because no The real-world model exists to fall back on. Someone in the formal-operations stage would Be able to extrapolate from this hypothesis and the reason that the beings on that planet might not have eyes would have no words for color, and might exclusively rely on other senses. In formal-operations stage, we gain the ability to think about the way we think; this is called metacognition. We can trace our thought processes and evaluate the effectiveness of how we solved a problem

Please read: Study 18 **Please Watch: PIAGET'S STAGES OF DEVELOPMENT**

Age Range	Description of Stage	Developmental Phenomena
Birth-2	Sensorimotor – Experiencing the world through senses and actions	Object permanence Stranger anxiety
2-6 years	Preoperational – Representing things with words and images	Pretend play Egocentrism Language development
7-11 years	Concrete Operational – Thinking logically about concrete events and grasping concrete analogies	Conservation Mathematical transformation
12 – adulthood	Formal Operational – Thinking about hypothetical scenarios and processing abstract thoughts	Abstract logic Potential for mature moral reasoning

CRITICISMS OF PIAGET'S THEORY

Although contemporary developmental psychologists accept Piaget's basic premise that infants, children, and adolescents have different cognitive abilities, they have challenged and refined aspects of his theory.

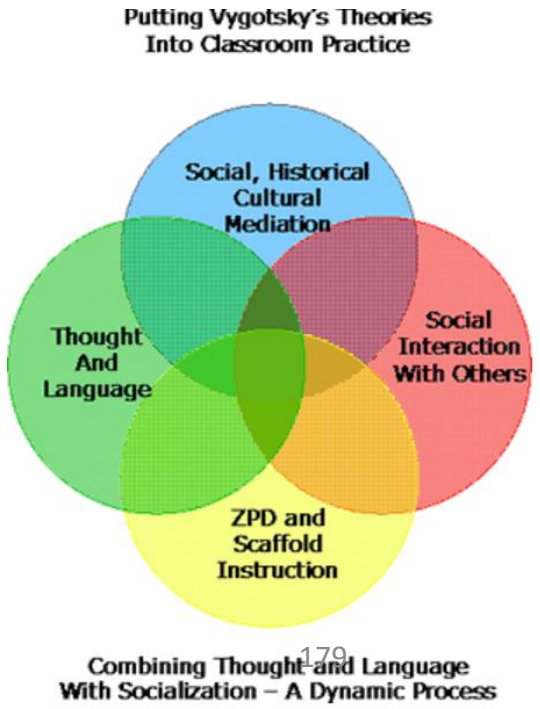
Russian psychologist ***Lev Vygotsky*** agreed with Piaget regarding the constructive nature of intellectual development. However, for Vygotsky, cognitive development occurs within a social context. Rather than construct methods of cognition as an individual, the child appropriates ways of thinking through social interaction. A society is produced through the construction and use of cultural tools, e.g. language. These tools are acquired during a culture's development and forwarded to subsequent generations. As a culture develops, new generations may adopt a cultural tool. This is known as ***appropriation***.

Vygotsky perceived the child as a social being who can appropriate new patterns of thinking when learning alongside a more competent individual. He called this concept, the ***Zone of Proximal Development***. This is the expanse between the child's level of development and their potential development level, in collaboration with more competent individuals. Social interaction, therefore, supports the child's cognitive development in the ZPD, leading to a higher level of reasoning.

Scaffolding is the second concept of focus. ***Scaffolding*** is directly related to the zone of proximal development in that it is the support mechanism that helps a learner successfully perform a task within his or her ZPD. Instructional scaffolding is a process through which a teacher adds support for students to enhance learning and aid in the mastery of tasks. The teacher does this by systematically building on students' experiences and knowledge as they are learning new skills. Just like the scaffold in the picture to the left, these supports are temporary and adjustable. As students master the assigned tasks, the supports are gradually removed.

Vygotsky stated that language has two functions. Inner speech is used for mental reasoning and external speech is used to converse with others. These operations occur separately. Indeed, before the age of two, a child employs words socially; they possess no internal language. Once thought and language merge, however, the social language is internalized and assists the child with their reasoning. Thus, the social environment is ingrained within the child's learning.

Do we develop our thoughts and behavior continuously or discontinuously? Vygotsky's concept of "zone of proximal development" is one answer to this question of continuity versus discontinuity: a child's zone of proximal development is the range of tasks the child can perform independently and those tasks the child needs assistance with. Teachers/parents can provide "scaffolds" for students to help them accomplish tasks at the upper end of their zone of proximal development, encouraging further cognitive development.



	Piaget	Vygotsky
Sociocultural context	Little emphasis	Strong emphasis
Constructivism	Cognitive constructivist	Social constructivist
Stages	Strong emphasis on stages of development	No general stages of development proposed
Key processes in development & learning	Equilibration; schema; adaptation; assimilation; accommodation	Zone of proximal development; scaffolding; language/dialogue; tools of the culture
Role of language	Minimal – Language provides labels for children's experiences (egocentric speech)	Major – Language plays a powerful role in shaping thought
Teaching implications	Support children to explore their world and discover knowledge	Establish opportunities for children to learn with the teacher and more skilled peers

Test Tip

Although Piaget's theory of cognitive development is a landmark in developmental psychology, it has only played a minor role in free-response questions. AP Psychology test writers prefer to use multiple-choice questions to test such basic Piagetian concepts as accommodation, assimilation, and object permanence. Don't spend valuable study time trying to memorize the definitions of these concepts. Instead, concentrate on being able to recognize illustrative examples of the concepts and stages in Piaget's theory.

Test Tip

Test Tip

To help remember Piaget and his stages think of the word Specify.
1st , Piaget identifies stages with very specific ages (a common criticism)
2nd, If you remove the vowels and the Y of Specify you are left with SPCF
Sensorimotor, Preoperational, Concrete Operational, Formal operation

Test Tip

Information-Processing Model

Many developmental psychologists still value Piaget's insights about the order in which our cognitive skills develop, but most agree that he underestimated children. Many children go through the stages faster and enter them earlier than Piaget predicted. Piaget's error may be due to the way he tested children. Some psychologists wonder if some of his tests relied too heavily on language use, thus basing the results in favor of older children with more language skills. Other theorists wonder if development does not occur more continuously than Piaget described. Perhaps our cognitive skills develop more continuously and not in discrete stages.

The information-processing model is a more continuous alternative to Piaget's stage theory. Information processing points out that our abilities to memorize, interpret, and perceive gradually develop as we age rather than develop in distinct stages. For example, research shows that our attention span gradually increases as we get older. This one continuous change could explain some apparent cognitive differences Piaget attributed to different cognitive stages. Maybe children's inability to understand the conservation of numbers has more to do with their ability to focus for long periods than any developing reasoning ability. Developmental researchers agree that no one has the perfect model to describe cognitive development. Future research will refine our current ideas and create models that more closely describe how our thinking changes as we mature.

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Please watch: THE GROWTH OF KNOWLEDGE

I can compare and contrast models of moral development (e.g., Kohlberg, Gilligan).

LAWRENCE KOHLBERG'S THEORY OF MORAL DEVELOPMENT

INTRODUCTION

As we have seen, infants are born with an array of behavioral reflexes. However, an infant is not born with a concept of morality. Moral reasoning or ideas of right and wrong must be learned. ***Lawrence Kohlberg*** (1927–1987) was an American psychologist who specialized in research on moral reasoning. His influential theory of stages of moral development is a milestone in developmental psychology.

Hypothetical moral dilemmas

Kohlberg first created a series of 10 hypothetical moral dilemmas. For example, here is the well-known "Heinz Dilemma." In Europe, a woman was near death from a special kind of cancer. There was one drug that doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging 10 times what the drug cost him to make. He paid $200 for the radium and charged $2,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only raise about $1,000, half of what the drug cost. He told the druggist that his wife was dying and asked him to sell it to him cheaper or let him pay later. But the druggist said, "No. I discovered the drug and I'm going to make money from it." Heinz got so desperate, he broke into the druggist's store to steal the drug for his wife.

Should the husband have done this?

Interviews

In his original study, Kohlberg presented his moral dilemmas to 72 boys from Chicago-area suburbs. The boys were 10, 13, and 16 years old. Kohlberg and his associates then interviewed each boy. During the 45-minute recorded interviews, Kohlberg asked participants a series of open-ended questions about the dilemmas. Note that Kohlberg focused on the form of moral reasoning used by each participant. Kohlberg concluded that his participants' responses could be categorized into three levels of moral development; pre-conventional, conventional, and post-conventional.

For more information on this study read: Study 19

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PRE-CONVENTIONAL MORALITY

The youngest children in Kohlberg's sample focus on making the decision most likely to avoid punishment. Their moral reasoning is limited to how the choice affects them. Children in the pre-conventional level might say that Heinz should not steal the drug because he might get caught and put into prison.

CONVENTIONAL MORALITY

The conventional level of moral reasoning is typical of adolescents and young adults. People at this level make moral judgments based on compliance with society's rules and values. These conventional standards of what is right and wrong are learned from parents, teachers, peers, and media. For example, conventional respondents typically explained that Heinz should not have taken the medicine because stealing would mean breaking the law.

POST-CONVENTIONAL MORALITY

The post-conventional level of moral reasoning is typically expressed by adults. People at this level develop personal standards of right and wrong. They define morality in terms of abstract principles of justice. For the first time, the morality of societal rules is examined rather than blindly accepted. For example, post-conventional respondents argued that Heinz should have stolen the medicine because his wife's right to life superseded the druggist's right to private property.

Level/Stage	Age Range	Description
I: Obedience/Punishment	Infancy	No difference between doing the right thing and avoiding punishment
I: Self-Interest	Pre-school	Interest shifts to rewards rather than punishment – effort is made to secure greatest benefit for oneself
II: Conformity and Interpersonal Accord	School-age	The "good boy/girl" level. Effort is made to secure approval and maintain friendly relations with others
II: Authority and Social Order	School-age	Orientation toward fixed rules. The purpose of morality is maintaining the social order. Interpersonal accord is expanded to include the entire society
III: Social Contract	Teens	Mutual benefit, reciprocity. Morally right and legally right are not always the same. Utilitarian rules that make life better for everyone
III: Universal Principles	Adulthood	Morality is based on principles that transcend mutual benefit.

Criticisms of Kohlberg

Researcher ***Carol Gilligan*** (b. 1936) criticized Kohlberg for failing to include females in his research design. Gilligan's criticism is based upon her argument that Kohlberg's theory fails to account for differences in experience and outlook between males and females. According to Gilligan, boys have a more absolute view of what is moral while girls pay more attention to situational factors. Boys might have moral rules that apply in every context, while girls might want to know more about the situation and relationships of the people involved before making a moral decision. Gilligan's insights demonstrate the importance of studying possible gender differences and how they might change as we develop.

Test Tip

Kohlberg's theory of moral reasoning can be complex. Do not spend valuable study time trying to memorize each part of his theory. Instead, know that children progress from a morality based on punishment and reward to one ultimately defined by abstract ethical principles.

Also, do not neglect Carol Gilligan's criticism of Kohlberg's theory. Test writers have actually asked as many multiple-choice questions about Gilligan's criticism as about Kohlberg's theory.

Test Tip

Recent research does not support Gilligan's theory of gender differences in moral development.

Sigmund Freud and Psychosexual Development

Historically, Freud was the first to theorize that we pass through different stages in childhood. Freud said we develop through four ***psychosexual stages***. Sexual to Freud meant not the act of intercourse but how we get sensual pleasure from the world. If we fail to resolve a significant conflict in our lives during one of these stages, Freud said we could become ***fixated*** in the stage, meaning we might remain preoccupied with the behaviors associated with that stage. (See the chapter "Personality" for a further review of this theory.)

Freud described five psychosexual stages:

Oral In this stage, infants seek pleasure through their mouths. You might notice that babies tend to put everything they can grab into their mouths. Freud thought that people fixated at this stage might overeat, smoke, and in general have a childlike dependence on things and people.

Anal This stage develops during toilet training. If conflict around toilet training arises, a person stage might fixate on the stage and be overly controlling (retentive) or out of control (expulsive).

Phallic During this stage, babies realize their gender and this causes conflict in the family. Freud stage described the process boys go through in this stage as the Oedipus complex when boys resent their father's relationship with their mother. The process for girls is called the Electra complex. Conflict in this stage could cause later problems in relationships.

Latency After the phallic stage, Freud thought children go through a short latency stage, or period of stage calm, and between the ages of six and puberty of low psychosexual anxiety that most psychologists don't regard as a separate stage.

Genital They then enter the genital stage where they remain for the rest of their lives. The focus of stage sexual pleasure is the genitals, and fixation in this stage is what Freud considers normal.

If Freud's psychosexual stages sound out-of-date to you, you are not alone. Many developmental psychologists would say that Freud's stage theory might have only historical importance and it is not likely to be used in scientific research.

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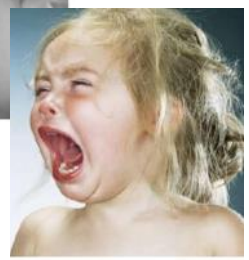
Erik Erikson's *theory of psychosocial development*

Erik Erikson was a *neo-Freudian*, a theorist who believed in the basics of Freud's theory but adapted it to fit his observations. Through his own life experiences of identity formation and his study in psychoanalysis with Anna Freud (Sigmund Freud's daughter), Erikson developed his stage theory of development. He thought that our personality was profoundly influenced by our experiences with others, so he created the ***psychosocial stage theory***. It consists of eight stages, each stage centering on a specific social conflict. As maturing individuals work out solutions to these crises, they gradually develop a stable identity. An identity is a person's definition or description of himself or herself.



STAGE 1: TRUST VERSUS MISTRUST (BIRTH TO AGE 1)
This stage begins at birth and lasts through one year of age.
The infant develops a sense of trust when interactions provide reliability, care, and affection.
A lack of this will lead to mistrust. May carry over throughout life.

Conflict: Trust vs. Mistrust **success = virtue of hope** **failure = fear**

STAGE 2, AUTONOMY VERSUS DOUBT (AGES 1–3)
During the second and third years of life, children develop new physical and mental skills. They can walk, climb, grasp objects, push and pull, and, of course, talk. Children are proud of these accomplishments and insist on doing everything themselves.

The crisis that now arises stems from a child's growing desire for autonomy. Parents who accept their child's need to control his or her body, impulses, and immediate environment foster a sense of autonomy, preparing the child for independence and they become more confident and secure in their own ability to survive in the world.

However, if parents insist on being overly controlling or harshly critical, they foster a growing sense of doubt, lack of confidence, and low self-esteem.

Conflict: Autonomy vs. Doubt **success = virtue of Will** **failure = doubt**

STAGE 3: INITIATIVE VERSUS GUILT (Pre-school years AGES 3–6)

Between the ages of three and six, a child's physical capacities develop to the point where he or she can initiate play activities rather than merely following other children. Young children often engage in play-acting, imagining themselves in a variety of adult roles. They also begin to ask many questions, a sign of intellectual initiative.

If parents respect and encourage these efforts, they will enhance their child's sense of initiative and/or purpose. If, however, the initiative is dismissed or discouraged, either through criticism or control, children will develop a sense of guilt about self-initiated activities that will be detrimental in later life.

Conflict: Initiative vs. Guilt **success = virtue of purpose** **failure = guilt**

STAGE 4: INDUSTRY VERSUS INFERIORITY (AGES 6–12)

Between the ages of six and twelve, the social setting expands from the family to school, where children are, for the first time, exposed to formal and impersonal rules.

During this time, young children demonstrate industry as they build model planes, construct tree houses, furnish doll houses, and complete school projects. A child's sense of industry will be reinforced if parents and teachers praise his or her creative projects. However, if parents scold a child for "making a mess" and teachers assign a child low grades, they can instill a lasting sense of inferiority.

It is at this stage that the child's peer group will gain greater significance and will become a major source of the child's self-esteem. The child is coping with new learning and social demands.

Conflict: Industry vs. Inferiority **success = virtue of Competence** **failure = inferiority**

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I can discuss maturational challenges in adolescence, including related family conflicts.

STAGE 5: IDENTITY VERSUS ROLE CONFUSION (ADOLESCENCE)

Please watch: ADOLESCENCE

During the teenage years, adolescents mature physically as they enter puberty. At the same time, adolescents become capable of abstract thought. The teenage peer group now provides an important social setting.

According to Erikson, this stage of life produces a psychosocial crisis that he calls "identity versus role confusion." No longer young children, but not yet adults, adolescents struggle to interpret their past, present, and future and combine them into a meaningful sense of identity.

Teenagers explore who they are as individuals, seek to establish a sense of self, and may experiment with different roles, activities, and behaviors. According to Erikson, this is important to the process of forming a strong identity and developing a sense of direction in life. Erikson emphasizes the role which culture plays in influencing an adolescent's selection of identity.

Conflict: Identity vs. Role Confusion success = virtue of Fidelity failure = confusion

I can characterize the development of decisions related to intimacy as people mature.

STAGE 6: INTIMACY VERSUS ISOLATION (18-40 years)

According to Erikson, young adults search for a partner to care about and share their lives with. A happy, newly-married couple illustrates the goal of intimacy.

During this period, the major conflict centers on forming intimate, loving relationships with other people. Success leads to strong relationships, while failure results in loneliness and isolation.

Conflict: Intimacy vs Isolation success = virtue of love failure = isolation

STAGE 7: GENERATIVITY VERSUS SELF-ABSORPTION or stagnation (40-65)

In this stage, the individual enters middle age. Family and work become the dominant social settings.

Erikson defined generativity as "the concern in establishing and guiding the next generation." If this fails, an individual can stagnate and become absorbed with material possessions and personal problems.

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Conflict: Generativity vs Stagnation success = virtue of caring failure = self-absorption

STAGE 8: INTEGRITY VERSUS DESPAIR (LATE ADULTHOOD)

During the last stage of life, a person must come to terms with dying. As a result, Erikson sees this stage as a time of reflection and evaluation.

People who can look back and feel that their lives were successful will feel a sense of self-acceptance that Erikson calls integrity. However, people who see their lives as a series of missed opportunities and "might have beens" will probably give in to despair.

Conflict: Integrity vs Despair **success = virtue of wisdom** **failure = despair**

ERIKSON'S STAGES OF PSYCHOSOCIAL DEVELOPMENT

Stage (approximate age)	Issue	Description of Task
Infancy (to 1 year)	Trust vs. mistrust	If needs are dependably met, infants develop a sense of basic trust.
Toddlerhood (1 to 3 years)	Autonomy vs. shame and doubt	Toddlers learn to exercise their will and do things for themselves, or they doubt their abilities.
Preschool (3 to 6 years)	Initiative vs. guilt	Preschoolers learn to initiate tasks and carry out plans, or they feel guilty about their efforts to be independent.
Elementary school (6 years to puberty)	Industry vs. inferiority	Children learn the pleasure of applying themselves to tasks, or they feel inferior.
Adolescence (teen years into 20s)	Identity vs. role confusion	Teenagers work at refining a sense of self by testing roles and then integrating them to form a single identity, or they become confused about who they are.
Young adulthood (20s to early 40s)	Intimacy vs. isolation	Young adults struggle to form close relationships and to gain the capacity for intimate love, or they feel socially isolated.
Middle adulthood (40s to 60s)	Generativity vs. stagnation	In middle age, people discover a sense of contributing to the world, usually through family and work, or they may feel a lack of purpose.
Late adulthood (late 60s and up)	Integrity vs. despair	Reflecting on his or her life, an older adult may feel a sense of satisfaction or failure.

Critical Evaluation

Erikson's theory has good face validity. Many people find that they can relate to his theories about various stages of the life cycle through their own experiences.

However, Erikson is rather vague about the causes of development. What kinds of experiences must people have to successfully resolve various psychosocial conflicts and move from one stage to another? The theory does not have a universal mechanism for crisis resolution.

Indeed, Erikson (1964) acknowledges his theory is more a descriptive overview of human social and emotional development that does not adequately explain how or why this development occurs. For example, Erikson does not explicitly explain how the outcome of one psychosocial stage influences personality at a later stage.

However, Erikson stressed his work was a 'tool to think with rather than a factual analysis.' Its purpose then is to provide a framework within which development can be considered rather than testable theory.

One of the strengths of Erikson's theory is its ability to tie together important psychosocial development across the entire lifespan. Although support for Erikson's stages of personality development exists (McAdams, 1999), critics of his theory provide evidence suggesting a lack of discrete stages of personality development (McCrae & Costa, 1997).

I can describe how sex and gender influence socialization and other aspects of development.

GENDER AND DEVELOPMENT

Gender refers to the socially constructed roles and characteristics by which a culture defines, "male" and "female."

Men and women are more alike than different, thanks to our similar genetic make-up- we see, hear, learn, and remember similarly. Males and females do differ in body fat, muscle, height, age of onset of puberty, life expectancy, and vulnerability to certain disorders.

In most societies, men have more social power, and their leadership style tends to be directive, whereas women's is more democratic. Women tend to focus more on social connectedness, and they "tend and befriend"."

Gender roles, the behaviors a culture expects from its males and females, vary across time and place.

Social learning theory proposes that we learn gender identity- our sense of being male and female- as we learn other things: through reinforcement, punishment, and observation. Critics argue we that cognition also plays a role because modeling and rewards cannot explain gender typing.

Transgender people's gender identity and expression differ from their birth sex. Their sexual orientation may be heterosexual, homosexual, bisexual, or asexual.

<u>Biopsychological (neuropsychological) theory</u>

Biopsychological psychologists concentrate on the natural element in the nature/nurture combination that produces our gender role. Children learn (and are often very curious about!) the obvious biological differences between the sexes. However, biopsychologists look for more subtle biological gender differences. For the AP test, you should know that studies demonstrate that these differences do exist. One of the most significant findings is that, on average, women have larger corpus callosum than men. Theoretically, this difference may affect how the right and left hemispheres communicate and coordinate tasks.

<u>Psychodynamic theory</u>

As noted in the chapter about psychological perspectives, some of Freud's psychodynamic perspectives are considered to have more historical value than current value. However, his views about gender role development are widely known (and sometimes referred to in the media) and so are worth mentioning. Freud viewed gender development as a competition. Young boys, unconsciously, compete with their fathers for their mothers' attention. Girls, similarly, compete with mothers for their fathers' love. Proper gender development occurs when a child realizes that she or he cannot hope to beat their same-sex parent at this competition and identifies with that person instead, girls learn to be a woman like mom or boys being a man like dad. To verify this idea empirically is difficult, if not impossible.

Social-Cognitive theory

Social and cognitive psychologists concentrate on the effects society and our thoughts about gender have on role development. Social psychologists look at how we react to boys and girls differently. For example, boys are more often encouraged in rough physical play than girls. Cognitive psychologists focus on the internal interpretations we make about the gender message we get from our environment. Gender schema theory explains that we internalize messages about gender into cognitive rules about how each gender should behave. If a girl sees that her little brother is encouraged to wrestle with their father, she creates a rule governing how boys and girls should play.

Overlearning

JOHN GABRIELI M.I.T. LECTURE 17: CHILD DEVELOPMENT

JOHN GABRIELI M.I.T. LECTURE 18: ADULT DEVELOPMENT

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Personality

In this section of the course, students explore major theories of how humans develop enduring patterns of behavior and personal characteristics that influence how others relate to them. The unit also addresses research methods used to assess personality.

Myers Modules 55-59 pages 554-605

5 to 7% of AP Course

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Objectives

- ☐ I can compare and contrast the major theories and approaches to explaining personality (e.g., psychoanalytic, humanist, cognitive, trait, social cognition, behavioral).
- ☐ I can describe and compare research methods (e.g., case studies and surveys) that psychologists use to investigate personality
- ☐ I can Identify frequently used assessment strategies (e.g., the Minnesota Multiphasic Personality Inventory [MMPI], the Thematic Apperception Test [TAT]), and evaluate relative test quality based on reliability and validity of the instruments.
- ☐ I can speculate how cultural context can facilitate or constrain personality development, especially as it relates to self-concept (e.g., collectivistic versus individualistic cultures).
- ☐ I can identify key contributors to personality theory (e.g., Alfred Adler, Albert Bandura, Paul Costa and Robert McCrae, Sigmund Freud, Carl Jung, Abraham Maslow, Carl Rogers).

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Define and Apply the following the following Vocab and/or concepts

personality
free association
psychoanalysis
unconscious
id
ego
superego
psychosexual stages
Oedipus [ED-uh-puss] complex
identification
fixation
defense mechanisms
repression
psychodynamic theories
Inferiority complex
collective unconscious
projective test
Thematic Apperception Test (TAT)
Rorschach inkblot test
false consensus effect
terror-management theory
humanistic theories
self-actualization
unconditional positive regard
self-concept
trait
personality inventory
Minnesota Multiphasic Personality Inventory (MMPI)
The Big Five Factors of Personality
empirically derived test
social-cognitive perspective
behavioral approach
reciprocal determinism
positive psychology
self
spotlight effect
self-esteem
self-efficacy
self-serving bias
narcissism
individualism
collectivism
Locus of Control
Type A and Type Personality

Key People

Sigmund Freud
Alfred Adler
Karen Horney
Carl Jung
Herman Rorschach
Abraham Maslow
Carl Rodgers
Paul Costa
Robert McCrea
Martin Seligman
Gordon Allport
Julian Rotter

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Personality is a term we use all the time. When we describe people to others, we try to convey a sense of what their personalities are like. Psychologists define ***personality*** as the unique attitudes, behaviors, and emotions that characterize a person. As you might expect, psychologists from each of the different perspectives have different ideas about how an individual's personality is created.

I can compare and contrast the major theories and approaches to explaining personality (e.g., psychoanalytic, humanist, cognitive, trait, social cognition, behavioral).

Freud's Psychosexual Theory

Sigmund Freud believed that one's personality was essentially set in early childhood. He proposed a psychosexual stage theory of personality. Stage theories are ones in which development is thought to be discontinuous. Freud's theory has four stages: the oral stage, the anal stage, the phallic stage, and the adult genital stage. Between the phallic stage and the adult genital stage is a latency period that some people refer to as a stage. Freud believed that sexual urges were an important determinant of people's personality development. Each of the stages is named for the part of the body from which people derive sexual pleasure during the stage.

Stages	Description
Oral stage:	During the oral stage (birth to one year), Freud proposed that children enjoy sucking and biting because it gives them a form of sexual pleasure.
Anal Stage:	During the anal stage (one to three years), children are sexually gratified by the act of elimination.
Phallic:	According to Freud, during the phallic stage (three to five years), sexual gratification moves to the genitalia. The ***Oedipus crisis***, in which boys sexually desire their mothers and view their fathers as rivals for their mother's love, occurs in this stage. Some theorists have suggested that girls have a similar experience, the Electra crisis, in which they desire their fathers and see their mothers as competition for his love. Both the Oedipus and Electra crises are named after figures in Greek mythology who lived out these conflicts. In the phallic stage, Freud suggests that boys and girls notice their physical differences. As a result, girls come to evidence penis envy, and the desire for a penis, and boys suffer from castration anxiety, the fear that if they misbehave, they will be castrated. Boys specifically fear that their fathers will castrate them to eliminate them as rivals for their mothers. To protect them against this threatening realization, Freud believed that the boys used the defense mechanism of identification. The purpose of defense mechanisms, in general, is to protect the conscious mind from thoughts that are too painful. ***Identification*** is when people emulate and attach themselves to an individual who they believe threatens them. Identification, according to Freud, serves a dual purpose. It prevents boys from fearing their fathers. It also encourages boys to break away from their attachment to their mothers (usually their primary caregivers) and learn to act like men.

Stage	Description
Latency:	(six years to puberty), during which they push all their sexual feelings out of conscious awareness (repression). During latency, children turn their attention to other issues. They start school, where they learn both how to interact with others and a myriad of academic skills.
Adult: genital stage	At puberty, children enter the last of Freud's stages, the adult genital stage. People remain in this stage for the rest of their lives and seek sexual pleasure through sexual relationships with others.

Freud suggested that children could get fixated in any one of the stages. A ***fixation*** could result from being either undergratified or overgratified. For instance, a child who was not fed regularly or who was overly indulged might develop an oral fixation. Such people, as adults, might evidence a tendency to overeat, a propensity to chew gum, an addiction to smoking, or another similar mouth-related behavior. Freud described two kinds of personalities resulting from an anal fixation due to traumatic toilet training. Someone with an anal-expulsive personality tends to be messy and disorganized. The term anal retentive is used to describe people who are meticulously neat, hyper-organized, and a bit compulsive. Fixation in the phallic stage can result in people who appear excessively sexually assured and aggressive or, alternatively, who are consumed with their perceived sexual inadequacies. These fixations result from psychic energy, the libido, getting stuck in one of the psychosexual stages.

Stage	Ages	Focus of Libido	Major Development	Adult Fixation Example
Oral	0 to 1	Mouth, Tongue, Lips	Weaning off of breast feeding or formula	Smoking, Overeating
Anal	1 to 3	Anus	Toilet Training	Orderliness, Messiness
Phallic	3 to 6	Genitals	Resolving Oedipus/ Electra Complex	Deviancy, Sexual Dysfunction
Latency	6 to 12	None	Developing Defense Mechanisms	None
Genital	12+	Genitals	Reaching Full Sexual Maturity	If all stages were successfully completed then the person should be sexually matured and mentally healthy.

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LEVELS OF AWARENESS

Conscious

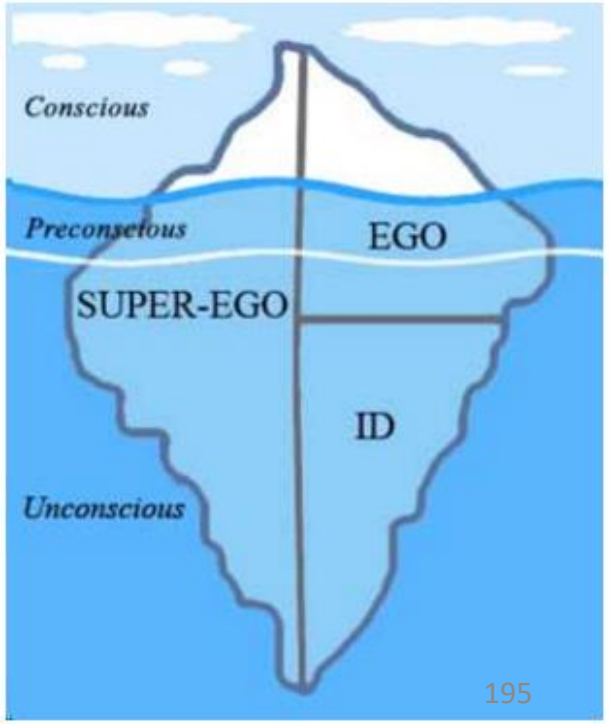
According to Freud, the conscious level consists of thoughts or motives that a person is currently aware of or is remembering. At this moment, your conscious mind is focusing on studying Freud's psychoanalytic theory of personality.

Preconscious

According to Freud, the preconscious level consists of thoughts, motives, and memories that can be voluntarily brought to mind. At this moment, your pre-conscious mind may include feelings of fatigue and hunger, plus random thoughts about what could be on the AP Psychology exam.

Unconscious

According to Freud, the unconscious level consists of thoughts, feelings, motives, and memories blocked from conscious awareness. Freud believed that the unconscious is not directly accessible. However, dream analysis can be a useful tool for gaining insight into unconscious motives. Freud believed that much of people's behavior is controlled by a region of the mind he called the *unconscious*. We do not have access to the thoughts in our unconscious. In fact, Freud asserted that we spend tremendous amounts of psychic energy to keep threatening thoughts in the unconscious. To delve into the unconscious minds of his patients, Freud developed a number of techniques including ***free association***. Psychoanalysts ask patients to *free associate*—to say whatever comes to mind without thinking. This technique is based on the idea that we all constantly censor what we say, thereby allowing us to hide some of our thoughts from ourselves. If we force ourselves to say whatever pops into our minds, we are more likely to reveal clues about what is really bothering us by eluding the ego's defenses.



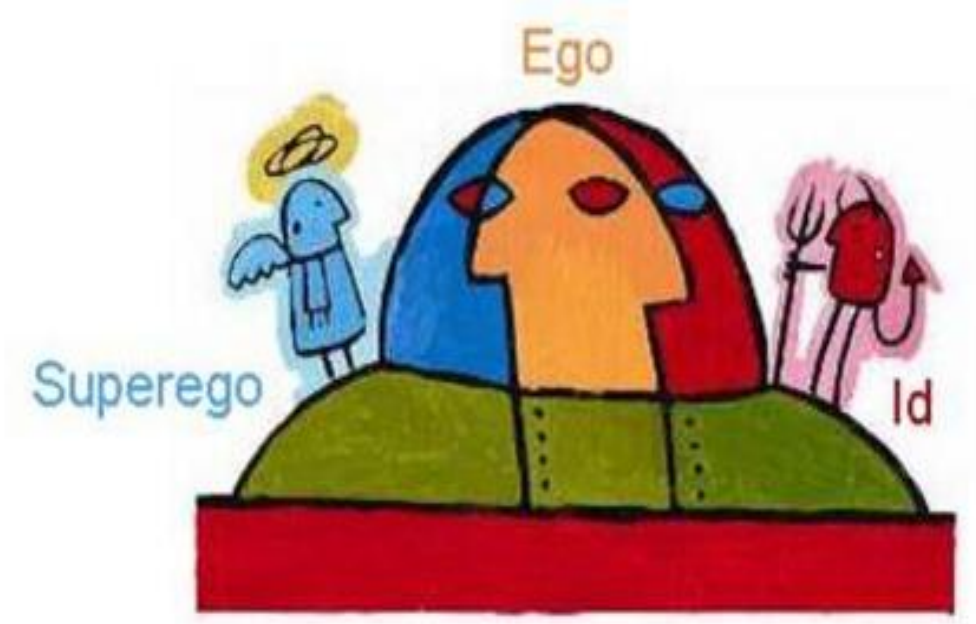
PERSONALITY STRUCTURE

Freud believed that personality is composed of three distinct psychological processes—the id, the ego, and the superego. It is important to remember that these are personality structures and not separate parts of the brain.

The id

According to Freud, the id (Latin for "it") is completely unconscious. It consists of innate sexual and aggressive instincts and drives. The id is impulsive, irrational, and immature. It operates on a pleasure principle, seeking to achieve immediate gratification and avoid discomfort. Gratifying urges return the body to homeostasis. Libido is the biological force/energy underlying pleasure-seeking activity. Thanatos is the death instinct.

Example: In line at the salad bar, Amy was so hungry that she shoved a handful of croutons in her mouth as she waited for the line to move.



The superego

According to Freud, the superego is partly conscious. It consists of internalized parental and societal standards. Popularly known as the "conscience," the superego operates on a morality principle, seeking to enforce ethical conduct. The super-ego is learned and inhibits the Id. Developed through reinforcements and punishments. Formed around age 5 via the Oedipus [ED-uh-puss] complex.

Example: The cashier only charged the couple for one meal even though they had eaten two. They could have gotten away with only paying for one, but they pointed out the cashier's mistake and offered to pay for both meals. They wanted to be honest and they knew that the restaurant owner and employees needed to make a living.

Click here to read Sigmund Freud's account to the id, ego, and superego

The ego

According to Freud, the ego (Latin for "I") resides in the conscious and preconscious levels of awareness. The ego is rational and practical. It operates on a reality principle, seeking to mediate between the demands of the id and the superego. Keenly aware of external realities, the ego attempts to facilitate an appropriate and timely gratification of desires. Prevents id drives from violating superego principles.

Click here for more examples

Example: In line at the salad bar, Amy really wanted to shove a handful of croutons into her mouth. However, since her boss was there, she decided to wait another minute or two until she sat down to eat.

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EGO DEFENSE MECHANISMS

Mediating the conflicting demands of the id and superego is difficult. Anxiety often results when the ego cannot find a realistic compromise. According to Freud, the ego uses unconscious distortions of reality called defense mechanisms to reduce anxiety.

Defense Mechanism	Description	Example
Repression	Unknowingly placing an unpleasant memory or thought in the unconscious	Not remembering a traumatic incident in which you witnessed a crime
Regression	Reverting back to immature behavior from an earlier stage of development	Throwing temper tantrums as an adult when you don't get your way
Displacement	Redirecting unacceptable feelings from the original source to a safer, substitute target	Taking your anger toward your boss out on your spouse or children by yelling at them and not your boss
Sublimation	Replacing socially unacceptable impulses with socially acceptable behavior	Channeling aggressive drives into playing football or inappropriate sexual desires into art
Reaction formation	Acting in exactly the opposite way to one's unacceptable impulses	Being overprotective of and lavishing attention on an unwanted child
Projection	Attributing one's own unacceptable feelings and thoughts to others and not yourself	Accusing your boyfriend of cheating on you because you have felt like cheating on him
Rationalization	Creating false excuses for one's unacceptable feelings, thoughts, or behavior	Justifying cheating on an exam by saying that everyone else cheats

Test Tip

Defense mechanisms have generated a significant number of multiple- choice questions. Test writers favor a format in which the question names a defense mechanism and then asks you to select an example that best exemplifies it.

Test Tip

For more information on Defense Mechanisms please read:

Study 30

CRITICISMS OF FREUD AND THE PSYCHOANALYTIC PERSPECTIVE

1. Freud's sweeping generalizations are based upon evidence drawn from a small number of patients.
2. Freud's key concepts are impossible to empirically measure.
3. Freud's theories often reflect a sexist view of women.
4. Freud's theory has very little predictive power.
5. Too much emphasis on early childhood and sex.

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Impact of Freudian Theory

Despite its shortcomings, Freudian theory has profoundly affected the world. Many people accept the idea that children are sexual creatures and that our behavior is shaped by unconscious thoughts Freud's impact on culture is arguably greater than its impact on contemporary psychology. Many of the terms originally invented by Freud have crept into laypeople's language (for example, ego, unconscious, penis envy, denial, and defense mechanisms).

PSYCHODYNAMIC THEORIES

Several of Freud's early followers developed offshoots of psychoanalytic theory. These approaches are now usually referred to as psychodynamic or neo-Freudian approaches. Two of the best-known creators of psychodynamic theories are ***Karen Horney***, ***Alfred Adler,*** and ***Carl Jung***.

Karen Horney believed that personality is significantly affected by the unconscious mind, but she also theorized that both interpersonal relationships and societal factors were key factors contributing to mental development. She became increasingly outspoken in her disagreements with the theories developed by Sigmund Freud on the nature of neuroses and personality. Where Freud advanced a biological basis for neuroses, Horney believed that the environment of childhood played a key role in personality development. She felt strongly that negative experiences in early childhood could trigger anxiety in adulthood.

Additionally, Karen Horney suggested that men might suffer from womb envy, most feminists, including Horney, make the point that women are probably more envious of the advantages that men enjoy in society than they are of men's penises.

In 1942, Horney co-founded the American Institute for Psychoanalysis. She is best known for broadening the perspective of psychoanalysis to consider childhood, environment, and interpersonal relationship. In 1955, three years after her death, the Karen Horney Clinic was established in New York City in her honor. The Clinic provides psychoanalysis and training for analysts.

Alfred Adler believed that infants and young children are helpless and dependent upon others. This situation produces deep feelings of weakness, inadequacy, and incompetence that Adler called an ***inferiority complex***.

Adler believed that individuals deal with feelings of inferiority in either of two ways:

They can compensate for real or imagined weaknesses by striving to improve themselves and by developing their talents and abilities. They can overcompensate for their feelings of inferiority by developing a superiority complex in which they exaggerate their accomplishments and deny their limitations.

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Like Freud, ***Carl Jung*** stressed the importance of unconscious processes. However, Jung distinguished between the personal unconscious and the ***collective unconscious***. The personal unconscious is more similar to Freud's view of the unconscious. Jung believed that an individual's personal unconscious contains painful or threatening memories and thoughts the person does not wish to confront; he termed these *complexes*. Jung contrasted the personal unconscious with the *collective unconscious*. The collective unconscious is passed down through the species and, according to Jung, explains certain similarities we see between cultures. The collective unconscious contains *archetypes* that Jung defined as universal concepts we all share as part of the human species. For example, the *shadow* represents the evil side of personality and the *persona* is people's creation of a public image. Jung suggested that the widespread existence of certain fears, such as fear of the dark, and the importance of the circle in many cultures, provides evidence for archetypes.

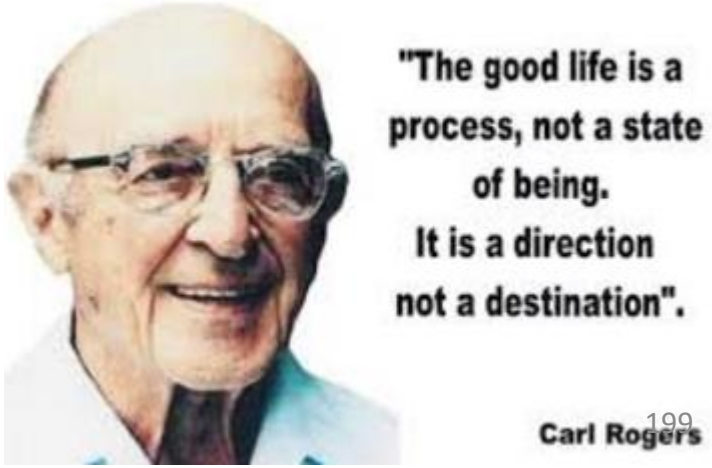
I can compare and contrast the major theories and approaches to explaining personality (e.g., psychoanalytic, humanist, cognitive, trait, social cognition, behavioral).

THE HUMANIST PERSPECTIVE ON PERSONALITY

The psychoanalytic approach to personality is considered deterministic. *Determinism* is the belief that what happens is dictated by what has happened in the past. According to psychoanalysts, personality is determined by what happened to an individual in his or her early childhood (largely during the psychosexual stages). The psychoanalytic theory does not support the existence of a *free will*, an individual's ability to choose his or her destiny. Free will is an idea that has been embraced by humanistic psychology.

Humanistic theories of personality view people as innately good and able to determine their destinies through the exercise of free will. These psychologists stress the importance of people's subjective experiences and feelings. They focus on the importance of a person's ***self-concept*** and ***self-esteem***. Self-concept is a person's global feeling about himself or herself. Self-concept develops through a person's involvement with others, especially parents. Someone with a positive self-concept is likely to have high self-esteem.

Carl Rogers (1902–1987) rejected Freud's pessimistic view of human nature. Instead, Rogers offered the optimistic view that people are innately good and thus, "positive, forward-moving, constructive, realistic, and trustworthy." Rogers argued that ***self-concept*** is the cornerstone of a person's personality. Self-concept is the set of perceptions and beliefs that individuals have about their nature and behavior. People whose self-concept matches their life experiences usually have high ***self-esteem*** and better mental health. Rogers believed that people are motivated to achieve their full potential or ***self-actualize***. Parents can help their children self-actualize by creating an atmosphere of ***unconditional positive regard*** in which a child is accepted and loved without any conditions. People must feel accepted to reach their full potential.



Abraham Maslow (1908–1970) shared Rogers' confidence in human nature. He also stressed that humans have a natural drive to find self-fulfillment and realize their potential. Maslow's famous hierarchy of needs is discussed in the motivation chapter. It is important to note that Maslow viewed self-actualization as an ongoing process of growth.

Humanistic theories of personality are criticized for putting forth an overly optimistic theory of human nature. If people are innately good and striving to do their best, it is difficult to explain the number and range of truly terrible acts that people commit.

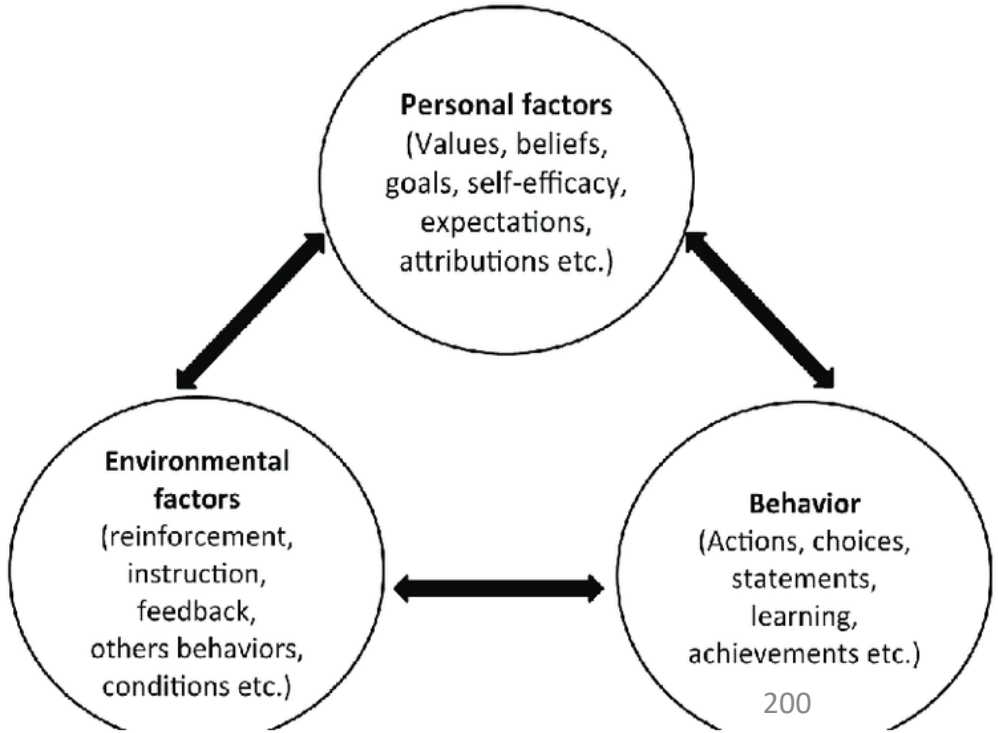
Please Watch: RORSCHACH & FREUDIANS

I can compare and contrast the major theories and approaches to explaining personality (e.g., psychoanalytic, humanist, cognitive, trait, social cognition, behavioral).

THE SOCIAL-COGNITIVE APPROACH TO PERSONALITY

Many models of personality meld together behaviorists' emphasis on the importance of the environment with cognitive psychologists' focus on patterns of thought. Such models are referred to as social-cognitive or cognitive-behavioral models.

Albert Bandura suggested that personality is created by an interaction between the person (traits), the environment, and the person's behavior. His model is based on the idea of *triadic reciprocality*, also known as ***reciprocal determinism***. These terms essentially mean that each of these three factors influences both of the other two in a constant feedback loop-like fashion. Look at an example. Brad is a friendly person. This personality trait influences Brad's behavior in that he talks to a lot of people. It influences the environments into which he puts himself and he goes to a lot of parties. Brad's loquacious behavior affects his environment in that it makes the parties even more partylike. In addition, Brad's talkativeness reinforces his friendliness; the more he talks, the more friendly he thinks he is. Finally, the environment of the party reinforces Brad's outgoing nature and encourages him to strike up conversations with many people.



Bandura also posited that personality is affected by people's sense of ***self-efficacy.*** People with high self-efficacy are optimistic about their own ability to get things done whereas people with low self-efficacy feel a sense of powerlessness. Bandura theorized that people's sense of self-efficacy has a powerful effect on their actions. For example, assume two students of equal abilities and knowledge are taking a test. The one with higher self-efficacy would expect to do better and therefore might act in ways to make that true (for example, spend more time on the test questions). So how are self-esteem and self-efficacy different? Self-esteem refers to general feelings of self-worth or self-value whereas self-efficacy is belief in one's capacity to succeed at tasks.

George Kelly proposed the personal-construct theory of personality. Kelly argued that people, in their attempts to understand their world, develop their own, individual systems of personal constructs. Such constructs consist of pairs of opposites such as fair-unfair, smart-dumb, and exciting-dull. People then use these constructs to evaluate their worlds. Kelly believed that people's behavior is determined by how they interpret the world. His theory is based on a fundamental postulate that essentially states that people's behavior is influenced by their cognitions and that by knowing how people have behaved in the past, we can predict how they will act in the future.

Julian Rotter's Social-Learning Theory

The key concept of ***Julian Rotter's*** social learning theory is a ***locus of control***, the degree to which we expect that reinforcement or outcome of our behavior is contingent on our behavior or personal characteristics, as opposed to the degree to which we expect that reinforcement or outcome of our behavior is a function of luck or fate is under the control of others, or is unpredictable.

Those with an ***internal locus of control*** think they control and are responsible for what happens to them—for example, their hard work gets rewarded.

In contrast, those with an ***external locus of control*** believe that what happens to them is due to fate, luck, or others—for example, people get promotions because they know the right people. Our locus of control has a major impact on our personalities because it influences both how we think about ourselves and the actions we take.

Cognitive psychologists are especially interested in assessing a person's locus of control. Be sure that you can explain and illustrate the difference between an internal locus of control and an external locus of control. For example, a person with an internal locus of control would carefully prepare for a job interview, while a person with an external locus of control would count on luck.

One of the newest fields of Psychology, Positive Psychology led by ***Martin Seligman*** continuously studies locus of control. While being too optimistic (an external locus) may lead to poor decisions and silly risk-taking (Oh…I am just going to wing the AP Exam in May and not study), ultimately a perception of control is related to a sense of well-being and better health. In sum, in all areas of life, prepare well, give yourself an internal locus of control and you will reap the benefits.

Cognitive and social-learning theories are criticized for overlooking the importance of emotions in our personalities and not recognizing unconscious motivation.

For more information on Rotter's studies please read: Study 25

For more information on Seligman's studies please read: Study 31

I can compare and contrast the major theories and approaches to explaining personality (e.g., psychoanalytic, humanist, cognitive, trait, social cognition, behavioral).

TRAIT THEORIES

Trait theorists believe that we can describe people's personalities by specifying their main characteristics, or ***traits***. These characteristics (for example, honesty, laziness, and ambition) are thought to be stable and to motivate behavior in keeping with the trait. In other words, when we describe someone as friendly, we mean that the person acts in a friendly manner across different situations and times.

Some trait theorists believe that the same basic set of traits can be used to describe all people's personalities. Such a belief characterizes a *nomothetic* approach. For instance, ***Hans Eyesenck*** believed that by classifying all people along an introversion-extraversion scale and a stable-unstable scale, we could describe their personalities.

Gordon Allport (1897-1967) believed that although there were common traits useful in describing all people, a full understanding of someone's personality was impossible without looking at their traits. Allport differentiated between three different types of personality traits. He used a comprehensive dictionary to develop a list of 4,504 adjectives that could be used to describe specific personality traits. He then arranged these traits into the following three levels: ***Cardinal traits*** that dominate and shape a person's outlook and play a pivotal role in virtually everything they do, **Central traits** that influence most of our behavior, **Secondary traits** that are only seen in certain situations

Needless to say, the traits on Allport's list proved to be confusing and overlapping. ***Raymond Cattell*** (1905–1998) used a statistical technique, called factor analysis, to reduce Allport's list to 171 terms. He later refined this list to 16 key personality factors. This led to the development of a personality measure known as the Sixteen Personality Factor Questionnaire or 16PF.

DEVELOPMENT OF THE FIVE-FACTOR MODEL OF PERSONALITY

Led by ***Paul Costa*** and ***Robert McCrae***, personality theorists continued to refine the list of traits as they searched for the basic underlying dimensions of personality.

Costa and McCrae's research ultimately led to the development of the Five-Factor Model, popularly called the ***"Big Five Model."***

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Take a personality test: PERSONALITY TEST

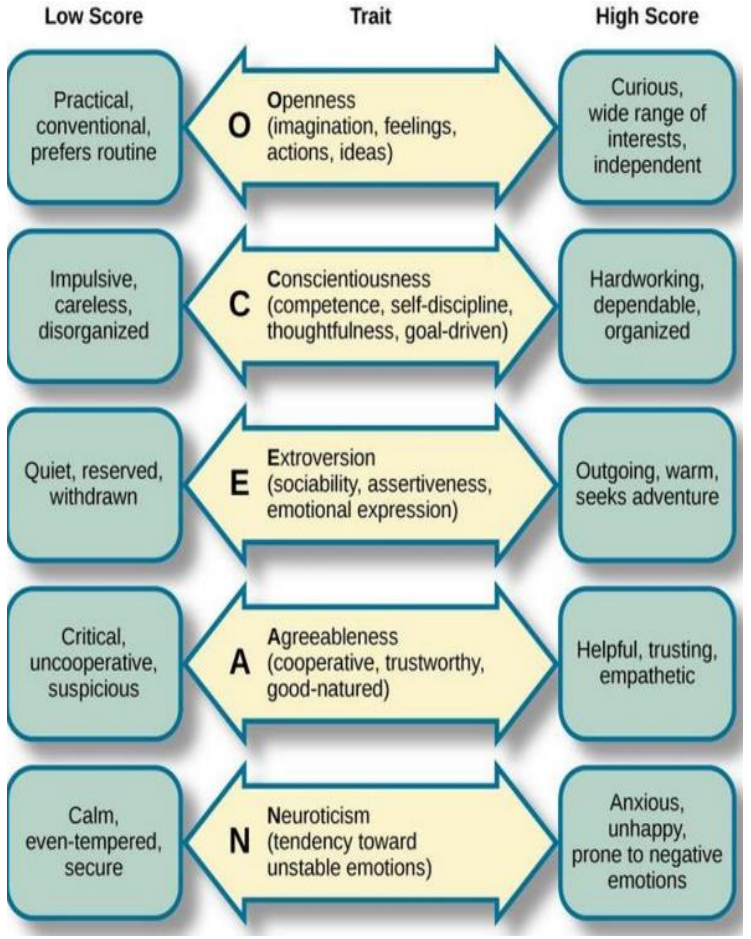
Openness - People with high scores on openness tend to be intellectually curious, open to experience, interested in cultural pursuits, and sensitive to beauty. People with low scores tend to be conventional thinkers who prefer straightforward answers and regard the arts and sciences with suspicion.
Examples: "I have a vivid imagination" or "I spend time reflecting on things"

Conscientiousness- People with high scores on conscientiousness tend to be self-disciplined, Well-organized, and motivated to achieve personal goals. People with low scores tend to be careless, impulsive, and undependable.
Examples: "I am always prepared," "I follow a schedule," and "I pay attention to details."

Extroversion - People with high scores on extroversion tend to be sociable, talkative, and enthusiastic. They like to draw attention to themselves in groups. People with low scores tend to be reserved, and quiet and prefer time alone.
Examples are "I am the life of the party," "I start conversations," and "I feel comfortable around people."

Agreeableness - People with high scores on agreeableness tend to be trusting, cooperative, and helpful. People with low scores tend to be suspicious, argumentative, and uncooperative.
Examples: "I make people feel at ease," I take time out for others," and "I am interested in other people's problems."

Neuroticism - People with high scores on neuroticism tend to be insecure, easily upset, anxious, and moody. People with low scores tend to be calm, easygoing, and emotionally stable.
Examples: "I get irritated easily," I worry about things."



CRITICISMS OF THE BIG FIVE MODEL

The Big Five Model underestimates the variability of behavior from situation to situation. For example, a person could be very extroverted in a setting where he or she feels comfortable and very reserved in a setting where he or she feels uncomfortable.

The Big Five Model does a good job of describing personality. However, it does not do a good job of explaining why people develop personality traits. The Big Five Model neglects such key personality dimensions as religiosity, manipulativeness, and sense of humor.

Test Tip

Remembering the five factors is easy. The first letter of each dimension—openness, conscientiousness, extroversion, agreeableness, and neuroticism—spells the word

OCEAN!

I can compare and contrast the major theories and approaches to explaining personality (e.g., psychoanalytic, humanist, cognitive, trait, social cognition, behavioral).

Behavioral Theory

B.F. Skinner maintained that behavior is personality. The environment shapes whom we become, and who we become is determined by the contingencies of reinforcement we have experienced. If we change someone's environment, we change his or her personality. Psychoanalysts criticize Skinner's theory for not taking into account emotions, and cognitivist criticize it for ignoring our thinking processes.

Comparing the Major Personality Theories

Personality Theory	Key Proponents	Assumptions	View of Personality
Psychoanalytic	Freud	Emotional disorders spring from unconscious dynamics, such as unresolved sexual and other childhood conflicts, and fixation at various developmental stages. Defense mechanisms fend off anxiety.	Personality consists of pleasure-seeking impulses (the id), a reality-oriented executive (the ego), and an internalized set of ideals (the superego).
Psychodynamic	Adler, Horney, Jung	The unconscious and conscious minds interact. Childhood experiences and defense mechanisms are important.	The dynamic interplay of conscious and unconscious motives and conflicts shape our personality.
Humanistic	Rogers, Maslow	Rather than examining the struggles of sick people, it's better to focus on the ways people strive for self-realization.	If our basic human needs are met, people will strive toward self-actualization. In a climate of unconditional positive regard, we can develop self-awareness and a more realistic and positive self-concept.
Trait	Allport, Eysenck, McCrae, Costa	We have certain stable and enduring characteristics, influenced by genetic predispositions.	Scientific study of traits has isolated important dimensions of personality, such as the Big Five traits (conscientiousness, agreeableness, neuroticism, openness, and extraversion).
Social-Cognitive	Bandura	Our traits and the social context interact to produce our behaviors.	Conditioning and observational learning interact with cognition to create behavior patterns.

Please watch: Measuring Personality

I can describe and compare research methods (e.g., case studies and surveys) that psychologists use to investigate personality

I can Identify frequently used assessment strategies (e.g., the Minnesota Multiphasic Personality Inventory [MMPI], the Thematic Apperception Test [TAT]), and evaluate relative test quality based on reliability and validity of the instruments

Assessment Techniques

Psychologists use a wide variety of techniques to measure personality, including interviews, direct observation and behavioral assessment, projective tests, and personality inventories. Psychologists, human resources specialists, and others use two types of interviews that both involve obtaining information about personal history, personality traits, and current psychological state. Unstructured interviews involve informal conversation centered on the individual, whereas structured interviews involve the interviewer posing a series of planned questions that the interviewee answers. The person being interviewed not only provides verbal answers, but also nonverbal information with his/her facial expressions, tone of voice, gestures, and posture. Diagnostic interviews, college interviews, and employment interviews are often structured but can be unstructured. While interviews can supply essential information about personality, they have limitations resulting from the interviewer's preconceptions, attempts at deception by the interviewee, and the halo effect. The halo effect is the tendency to generalize a favorable impression to unrelated dimensions of the subject's personality.

Direct Observation

Have you ever watched the behavior of people as you waited in line or sat in a public place? If so, you were engaging in a process similar to the assessment known as direct observation. Psychologists sometimes look at the behavior of an individual as he or she interacts with others, carries on normal functions, or performs specific tasks to identify personality traits or problems. Behaviorists prefer observational techniques. They may use rating scales that list personality traits or behaviors to be evaluated. Behavioral assessments record the frequency of specific behaviors in an observation. Though they criticize the subjective nature of other types of assessment, behaviorists also have to make inferences about what they see in another person's behavior. Lab studies have careful controls, but a potential flaw with naturalistic observational studies is the Hawthorn effect. When people know that they are being observed, they change their behavior to what they think the observer expects or to make themselves look good.

Projective Tests

Psychoanalysts use projective personality tests that present ambiguous stimuli, such as inkblots or pictures, with the assumption that test-takers will project their unconscious thoughts or feelings onto the stimuli. The objective is to uncover deeply hidden unconscious thoughts, feelings, wishes, and needs. A famous example is a test created by ***Herman Rorschach.*** The famous ***Rorschach inkblot test*** presents 10 bilaterally symmetrical inkblots, asking the person to tell what he or she sees in each one and to indicate the features of the inkblot that prompted the response. The evaluator scores each response based on a rubric, inputs the data into a scoring system, and then uses clinical judgment to prepare a profile of the person's motives and conflicts.

Please read: Study 35

Another projective test, the ***Thematic Apperception Test (TAT)*** created by Henry Murray and Christiana Morgan, consists of a set of 20 cards (one blank) with people in ambiguous situations. People are shown several cards in sequence. Murray thought that people would reveal their need for achievement, sex, power, or affiliation in their answers to requests to tell what is happening in the picture, what led up to it, how the people feel, and how the situation turns out. For example, people who tell stories in which people work hard to accomplish their goals or overcome obstacles indicate a high need for achievement. Because they are unstructured, projective tests often get people to talk about anxiety-provoking situations that they otherwise wouldn't reveal, exposing unconscious conflicts. Although psychoanalysts have delineated ways to interpret subjective responses on projective tests, other psychologists question the validity and reliability of these assessments.

Please Read: Study 36

Self-Reported Tests

Self-report methods, the most common personality assessment technique, involve the person answering a series of questions, such as a personality questionnaire, or supplying information about himself or herself. Different psychologists and different approaches make use of different self-report methods. Jung's personality types are measured by the ***Myers-Briggs Type Indicator***; Cattell's personality traits are measured by the 16 PF; Rotter's locus of control is measured by the Internal-External Locus of Control Scale; Maslow's self-actualization is measured by the Personal Orientation Inventory; Rogers's congruence between the actual self and ideal self is measured by the Q-sort. The validity of all of these is questioned.

Among the best-known, most researched, and most widely used self-report personality tests is the ***MMPI-2 (Minnesota Multiphasic Personality Inventory-2),*** composed of 567 true-false items. The items were originally chosen from among hundreds given to groups of people diagnosed with psychological disorders as well as "normal" people. Items that differentiated between the patient group and the normal group were included in the test; items that didn't were eliminated. Each item needed to correlate highly with some trait or dimension of personality. The test has 10 clinical scales such as schizophrenia and depression; 15 content scales such as anger and family problems, and validity scales to detect whether or not a person is lying. The tests are scored objectively, usually by computer, and charted as an MMPI-2 profile. Patterns of responses reveal personality dimensions. By comparing someone's profile to the profile of the normal group, psychologists identify abnormalities. Employers sometimes compare the profile of a job applicant to the profile of successful employees in making employment decisions. As well-researched and carefully constructed as the MMPI-2 is, its validity is not guaranteed, and some psychologists think peer reports yield more valid information. Two assessments designed to assess personality based on the five-factor model in healthy people have been gaining in popularity: the NEO Personality Inventory (NEO-PI) and the Big Five Questionnaire (BFQ), which is being used in cross-cultural research.

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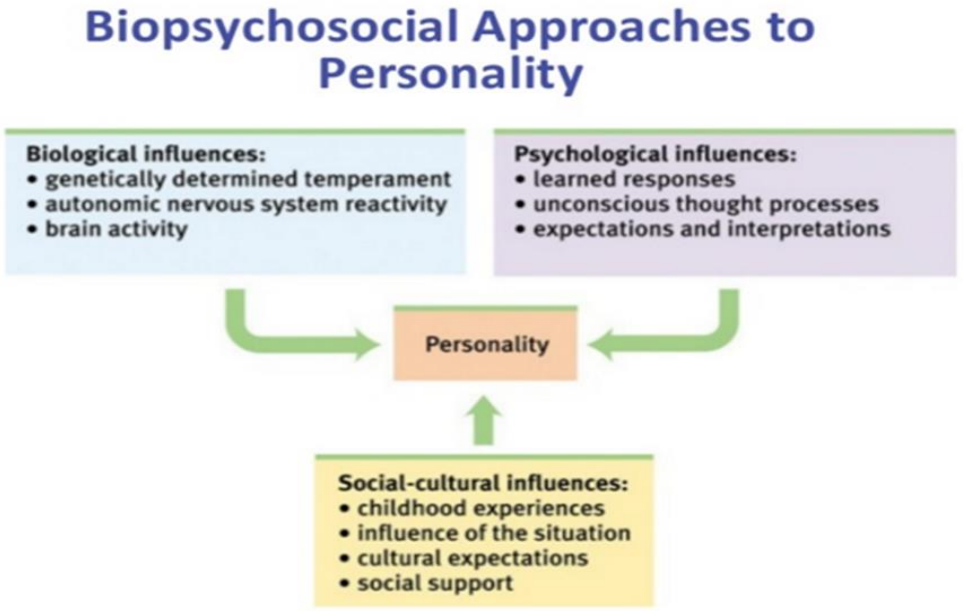
Comparing Research Methods Used To Investigate Personality

Research Method	Description	Perspectives incorporating this method	Benefits	Weaknesses
Case study	In-depth study of one.	Psychoanalytic, humanistic	Less expensive than other methods.	May not generalize to the larger population.
Survey	Systematic questioning of a random sample of the population.	Trait, social-cognitive, positive psychology	Results tend to be reliable and can be generalized to the larger population.	May be expensive; correlational findings.
Projective tests (e.g., TAT and Rorschach)	Ambiguous stimuli designed to trigger projection of inner dynamics.	Psychodynamic	Designed to get beneath the conscious surface of a person's self-understanding may be a good ice-breaker.	Results have weak validity and reliability.
Personality Inventories, such as Myers-Briggs, the MMPI, and (thanks to factor analysis) the Big Five	Objectively scored groups of questions designed to identify personality dispositions.	Trait	Generally reliable and empirically validated.	Explore limited number of traits.
Observation	Studying how individuals react in different situations.	Social-cognitive	Allows researchers to study the effects of environmental factors on the way an individual's personality is expressed.	Results may not apply to the larger population.
Experimentation	Manipulate variables, with random assignment to conditions.	Social-cognitive	Discerns cause and effect.	Some variables cannot feasibly or ethically be manipulated.

I can speculate how cultural context can facilitate or constrain personality development, especially as it relates to self-concept (e.g., collectivistic versus individualistic cultures).

In North America and Western Europe, our societies foster an independent view of the self characterized by ***individualism***, identifying oneself in terms of personal traits with independent, personal goals. Bandura has extended his theory to the behavior of the individual in groups.

Collective efficacy is our perception that with collaborative effort, our group will obtain its desired outcome. Some recent research studies indicate that high self-efficacy appears to be more beneficial in individualistic societies, such as North American and Western European societies and high collective efficacy seems to be more beneficial in ***collectivistic*** societies, such as Asian societies, for the achievement of group goals. Asian countries (including Japan, China, and India) foster an interdependent view of the self characterized by collectivism, primary identification of an individual as a member of a group (family, school, company, community) and goals of the group as one's own goals.



Some ideas about personality do not fit neatly into one school of thought.

An example is the concept of Type A and Type B personalities. ***Type A*** people tend to feel a sense of time pressure and are easily angered. They are competitive and ambitious; they work hard and play hard. Interestingly, research has shown that Type A people are at a higher risk for heart disease than the general population. ***Type B*** individuals, on the other hand, tend to be relaxed and easygoing. But these types do not fall on opposite ends of a continuum; some people fit into neither type.

Type A individuals	Type B individuals
• impatient time-conscious • controlling • concerned about their status • highly competitive • ambitious business-like • aggressive • having difficulty relaxing • high-achieving workaholics who multi-task • drive themselves with deadlines, • are unhappy about delays • often described as "stress junkies"	• patient • relaxed • easy-going • generally lacking an overriding sense of urgency

Please read: Study 27

Over learning:

JOHN GABRIELI M.I.T. LECTURE 16: PERSONALITY

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Testing and Individual Differences

An understanding of intelligence and assessment of individual differences is highlighted in this portion of the course. Students must understand issues related to test construction and fair use.

Myers Modules 60-64 pages 606- 648

5 to 7% of AP Course

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Objectives

- ☐ I can define intelligence and list characteristics of how psychologists measure intelligence: abstract versus verbal measures; speed of processing.
- ☐ I can discuss how culture influences the definition of intelligence.
- ☐ I can compare and contrast historic and contemporary theories of intelligence (e.g., Charles Spearman, Howard Gardner, Robert Sternberg).
- ☐ I can explain how psychologists design tests, including standardization strategies and other techniques to establish reliability and validity.
- ☐ I can interpret the meaning of scores in terms of the normal curve.
- ☐ I can describe relevant labels related to intelligence testing (e.g., gifted, cognitively disabled).
- ☐ I can debate the appropriate testing practices, particularly in relation to culture-fair test uses.
- ☐ I can identify key contributors in intelligence research and testing (e.g., Alfred Binet, Francis Galton, Howard Gardner, Charles Spearman, Robert Sternberg, Louis Terman, David Wechsler).

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Define and Apply the following the following Vocab and/or concepts

intelligence
intelligence test
general intelligence (g)
factor analysis
savant syndrome
grit
emotional intelligence
mental age
Stanford-Binet
intelligence quotient (IQ)

achievement test
aptitude test
Wechsler Adult Intelligence Scale (WAIS)
standardization
normal curve
reliability
validity
content validity

predictive validity
cohort
crystallized intelligence
fluid intelligence
intellectual disability
Down syndrome
heritability
stereotype threat
Flynn Effect
Self-fulfilling Prophecies

Key People

Francis Galton
Daniel Goleman
Louis Terman
Charles Spearman
Robert Sternberg
David Wechsler
Howard Gardner
Alfred Binet

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I can compare and contrast historic and contemporary theories of intelligence (e.g., Charles Spearman, Howard Gardner, Robert Sternberg).

Intelligence & Testing

Psychologists have long debated the nature of intelligence and still are not in full agreement. For example, is intelligence a single general ability? Or is intelligence a cluster of different mental abilities? Definitions of intelligence vary according to culture. In the US, intelligence is typically associated with high grades and test scores. Elsewhere in the world, being "smart" may have more to do with knowing how to survive and stay healthy. David Wechsler formulated the following widely-accepted definition of intelligence: "The global capacity to think rationally, act purposefully, and deal effectively with the environment." ***Francis Galton*** was a pioneer in the study of human intelligence and testing, who initiated the use of surveys for collecting data and developed and applied statistics toward its analysis.

The G factor

British psychologist ***Charles Spearman*** observed that an individual's scores on various tests of intellectual performance correlated with one another. That is, people who performed well on a test of one mental ability, such as mathematical reasoning, tended to also do well on verbal ability and other tests. Based upon this observation, Spearman proposed that intelligence is a single underlying factor, which he termed **general intelligence or the g factor**. Spearman concluded that the g factor could be expressed as a single number, such as an IQ score.

Raymond Cattell's research studies led him to conclude that Spearman's concept of general intelligence could be broken down into two relatively independent components that he called fluid and crystallized intelligence.

Fluid Intelligence	Crystallized Intelligence
• Inherited ability to reason and think	• Accumulated knowledge and information acquired over a lifetime
• Neurophysiological base: dependent on the state of the brain and nervous system	• Application of skills and knowledge to problem solving
• Minimal dependence on school learning or acculturation	• Education dependent
• Inductive reasoning; problem solving	• Verbal and general knowledge
• Nature	• Nurture

Fluid intelligence (it flows and changes throughout life) includes memory, speed of information processing, and reasoning abilities, such as forming new concepts, seeing underlying relationships, and quickly solving unfamiliar problems. Cattell believed that fluid intelligence is innate and thus independent of education and experience. Fluid intelligence, like other biological capacities, declines with age.

Crystallized intelligence (*takes a definite form)* refers to the store of knowledge and skills gained through experience and education. Crystallized intelligence remains stable or increases slightly with age.

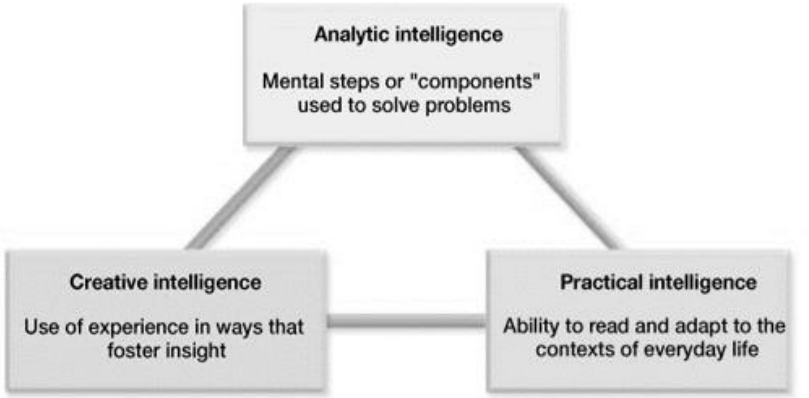
Test Tip

Make sure you know the difference between fluid intelligence and crystallized intelligence. Remember that "fluid" means to flow and fluid intelligence changes throughout life. In contrast, "crystallize" means to take a definite form. Crystallized intelligence takes a definite form and remains stable, or even increases slightly, as a person ages.

Test Tip

Contemporary cognitive theorists now believe that intelligence is a collection of separate and different abilities. **Robert Sternberg's *triarchic theory*** of intelligence identifies the following three aspects of intelligence:

1. Analytical intelligence—logical reasoning skills that include analysis, evaluation, and comparison.
2. Creative intelligence—imaginative skills that include developing new inventions and seeing new relationships.
3. Practical intelligence—practical "street smart" skills that include coping with people and events.



Sternberg believes that each of these three intelligences is learned, and therefore, can be developed and enhanced.

Howard Gardner is one of the many critics of the g or single factor intelligence theory. "***Savant syndrome***" is the name for a rare but extraordinary condition in which someone with serious mental impairment (often some form of autism) displays a spectacular "island of genius" amidst their overall disability. While it is true that most savants have measured IQs between 50 and 70, in some instances IQ can be as high as 125, or even higher. Additionally, Gardner points out that different cultures recognize and value different abilities. For example, the Hapsburg rulers of Austria prized and rewarded musical skills. As a result, musical geniuses, such as Mozart and Beethoven, transformed Vienna into the music capital of Europe.

To Gardner, both of these examples are indications that a single factor g does not underlie all intelligence. He has proposed a theory of ***multiple intelligences***. Three of his intelligence are measured on traditional intelligence tests: logical-mathematical, verbal-linguistic, and spatial. The rest of his Intelligences are not usually tested for on standardized tests: musical, bodily-kinesthetic, naturalistic, intrapersonal, and interpersonal.

According to Gardner, these abilities also represent ways that people process information differently in the world, which has led to changes in how some school systems classify gifted and talented children for special programs.

Howard Gardner's Eight Intelligences

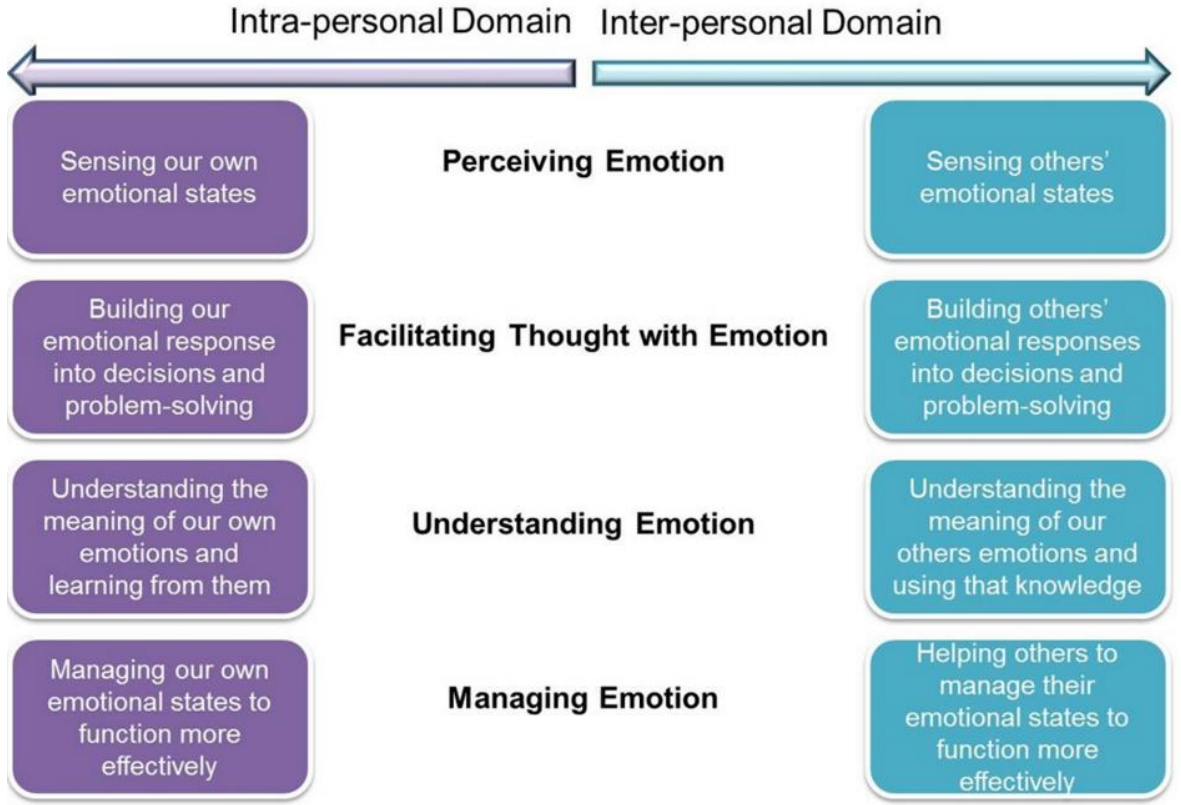
Intelligence type	This type of learner often...
Visual-spatial (picture smart)	• Learns best with visual icons • Is artistic • Is able to read maps, blueprints, and graphs, with ease
Verbal-linguistic (word smart)	• Has strong reading skills • Is able to write well • Can process academic lectures effectively
Musical-rhythm (music smart)	• Taps a beat with a pencil or foot or hums softly during silent work time • Processes information by associating it with beats and rhythms that allow them to make sense of data and store it in the brain • Learns and studies best with headphones on
Logical-mathematical (number smart)	• Is good with math and numbers • Is a linear thinker • Needs order and systematic directions or steps in order to process the content
Bodily kinesthetic (body smart)	• Is a good athlete • Has excellent fine motor skills • Benefits from concrete, hands-on learning activities
Interpersonal (people smart)	• Enjoys socializing with others • Needs to interact with others in order to process information • Benefits from group brainstorming
Intrapersonal (self-smart)	• Processes information best by working alone in quiet solitude • Finds working with groups to be distracting
Naturalistic (environment smart)	• Gravitates toward natural patterns • Gains brain stimulation when in a natural, outdoor environment • Improves engagement with tasks when exposed to the sights, sounds, and smells of the outdoors

[Click here to take a multiple intelligence test](#)

Please read: [Study 14](#)

Recently there has been a lot of discussion of EQ, which is also known as ***emotional intelligence***. One of the main proponents of EQ is ***Daniel Goleman***. EQ roughly corresponds to Gardner's notions of interpersonal and intrapersonal intelligence. Researchers who argue for the importance of EQ point out that the people with the highest IQs are not always the most successful people. They contend that both EQ and IQ are needed to succeed.

Peter Salovey and ***John Mayer*** labeled the ability to perceive, express, understand, and regulate emotions as emotional intelligence. Salovey and Mayer's emotional intelligence combines Gardner's intrapersonal and interpersonal intelligence.



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I can define intelligence and list characteristics of how psychologists measure intelligence: abstract versus verbal measures; speed of processing.

THE DEVELOPMENT OF INTELLIGENCE TESTS

During the early 1900s, French psychologist ***Alfred Binet*** designed a series of tests to measure the mental abilities of school children. Binet focused on mental abilities such as memory and the ability to distinguish similarities and differences. Binet soon discovered that brighter children performed like older children. For example, a bright 8-year-old might be able to answer the same number of questions as an average 10-year-old. This insight led Binet to make a distinction between a child's ***mental age*** and a child's chronological age. Binet used his new test to compute an average score for each age level. He then compared each child's performance against the average abilities of a given age group. For example, if a child's score was the same as the average score for a group of 8-year-olds, the child was said to have the mental age (MA) of an 8-year-old, regardless of his or her chronological age (CA). One problem with relying on mental age is that it cannot be used to compare intelligence levels across age groups.

Binet's pioneering work impressed Stanford University psychologist ***Lewis Terman*****.** Within a short time, Terman developed a revised test that he called the ***Stanford-Binet Intelligence Scale***.

Terman used the following formula to compute a child's ***intelligence quotient*** or IQ:

IQ = Mental Age (MA) divided by Chronological Age (CA) X 100

For example, an 8-year-old child who correctly answered the same number of questions as a 10-year-old would have a mental age of 10. Using the Stanford-Binet IQ formula, the child would have an IQ of 10/8 X 100 or 125. An average child whose mental and chronological age are the same would have an IQ of 100 on the Stanford-Binet, in other words, the ratio of mental age to chronological age for a child of average intelligence is 1:1.

Paraphrased Sample Items from the Stanford-Binet Intelligence Test

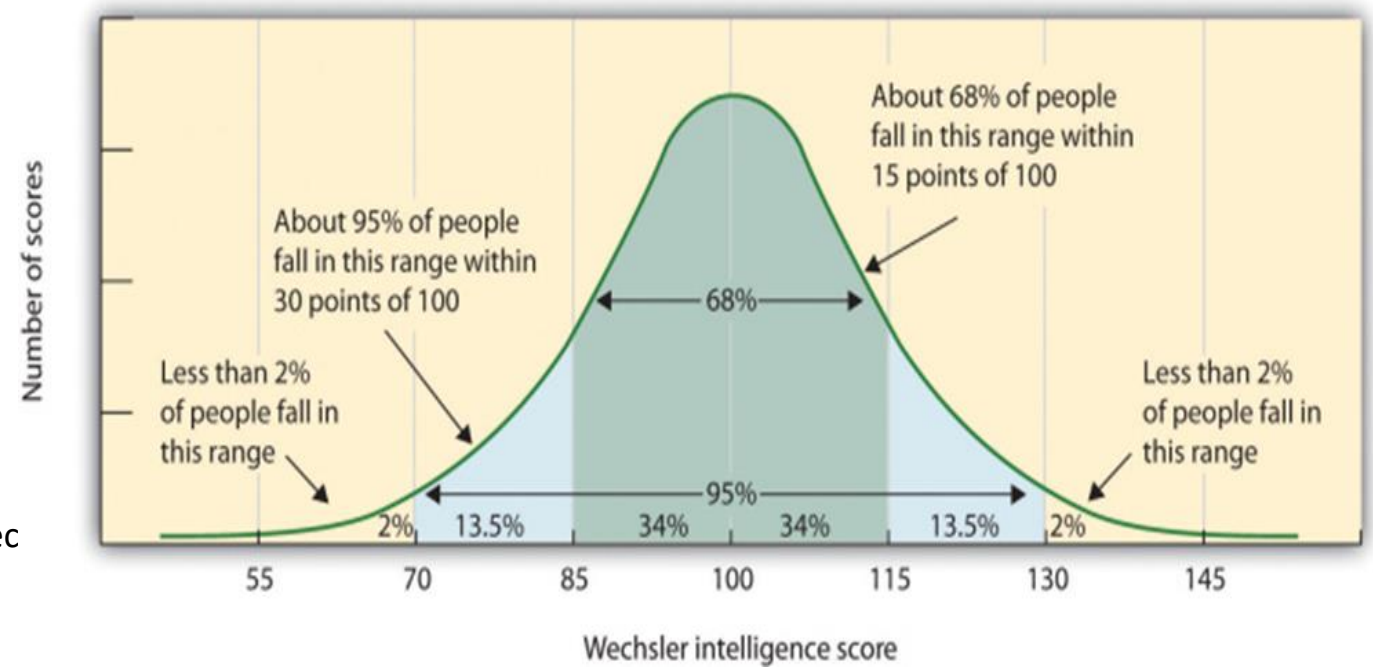
AGE*	TYPE OF ITEM	PARAPHRASED SAMPLE ITEM
2	Board with three differently shaped holes	Child can place correct shape into matching hole on board.
4	Building block bridge	Child can build a simple bridge out of blocks after being shown a model.
7	Similarities	Child can answer such questions as "In what way are a ship and a car alike?"
9	Digit reversal	Child can repeat four digits backwards.
Average adult	Vocabulary	Child can define 20 words from a list.

I can interpret the meaning of scores in terms of the normal curve.

Another test created primarily for adults was created by ***David Wechsler*** and is known as the ***Wechsler Adult Intelligence Scale (WAIS),*** It targets four areas of intellectual performance: verbal abilities, perceptual reasoning, working memory, and processing speed. In the United States, Wechsler tests are now used more frequently than the Stanford-Binet and are now the most widely-used measures of intelligence.

Like the Stanford-Binet test, Wechsler's test yielded a final single IQ score. However, Wechsler used a new approach to calculate the IQ score. Instead of using the Stanford-Binet's IQ formula, Wechsler determined how far a person's score deviates from the scores of others in the same group. The group scores formed a bell-shaped curve with a statistically fixed mean score of 100 (the same average as the Stanford-Binet test).

This normal distribution means that 34 percent of individual scores are one standard deviation or 15 points below 100 and another 34 percent are one standard deviation or 15 points above 100. Thus, 68 percent of all individuals score between 85 and 115. Today, the Stanford-Binet and most other intelligence tests use this system. In addition to his test for adults, Wechsler developed intelligence tests for preschool and school-agec



I can explain how psychologists design tests, including standardization strategies and other techniques to establish reliability and validity.

PRINCIPLES OF TEST CONSTRUCTION

Psychometrics is the measurement of mental traits, abilities, and processes. Psychometricians are involved in test development to measure some construct or behavior that distinguishes people.

First, ***aptitude tests*** (like the SAT, etc.) are designed to predict a person's future performance or to assess the person's capacity to learn and ***achievement tests*** are designed to assess what a person has already learned (our AP Exam in May).

Standardization

Suppose you correctly answered 40 of 50 questions on an intelligence test. Did you perform well or poorly?

A good intelligence test is standardized, reliable, and valid

To determine how well you performed, your score must be compared to a standard of performance. ***Standardization*** means that the test has been uniformly presented to a large, representative sample of people. The scores of this representative group set the norms or standards against which the performance of later test takers can be evaluated. For example, standardized norms for the Stanford-Binet and the Wechsler tests all form a bell-shaped curve so that 68 percent of the scores occur within one standard deviation above or below the mean.

How do they standardize?

After many questions for a test have been written, edited, and pretested, questions are thrown out if nearly everyone answers them correctly or if very few answer them right because these types of questions do not tell us anything about individual differences.

Tests that differentiate among test takers and that are composed of questions that fairly test all aspects of the behavior to be assessed are assembled.

They are then administered to a sample of hundreds or thousands of people who fairly represent all of the people who are likely to take the test. This sample is used to standardize the test.

The process of standardization is a two-part test development procedure that first establishes test norms from the test results of the large representative sample who initially took the test, then assures that the test is both administered and scored uniformly for all test takers.

Norms are scores established from the test results of the representative sample, which are then used as a standard for assessing the performances of subsequent test takers; in other words, norms are standards used to compare the scores of test takers.

For example, the mean score for the Wechsler Adult Intelligence Scale (IQ test) is 100 and the standard deviation is 15, based on the “standardization” sample.

When administering a standardized test, all proctors must give the same directions and time limits and provide the same conditions as all other proctors. All scorers must use the same scoring system, applying the same standards to rate responses as all other scorers. Thus, we should earn the same test score no matter where we take the test or who scores it.

Reliability

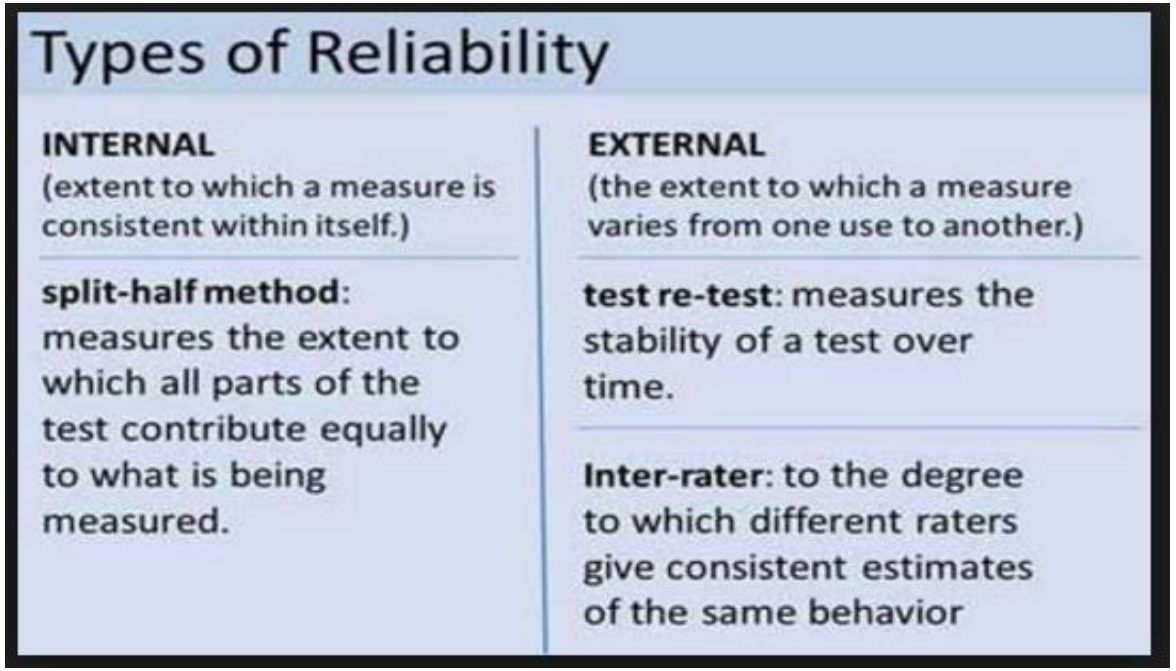
If a test is ***reliable***, we should obtain the same score no matter where, when, or how many times we take it (if other variables remain the same). Several methods are used to determine if a test is reliable.

Test-retest reliability, the same exam is administered to the same group on two different occasions, and the scores are compared. The closer the correlation coefficient is to 1.0, the more reliable the test. Every time I take the SAT, for example, I would hope to get approximately the same score. I would not want to score low in one session and high in another. The problem with this method of determining reliability or consistency is that performance on the second test may be better because test takers are already familiar with the questions.

Split-half reliability, the score on one-half of the test questions is correlated with the score on the other half of the questions to see if they are consistent. One way to do that might be to compare the score of all the odd-numbered questions to the score of all the even-numbered questions.

Alternate-form OR (same thing) equivalent form reliability: two different versions of a test on the same material are given to the same test takers, and the scores are correlated.

Interrater-reliability: the extent to which two or more scorers evaluate the responses in the same way.



Test Tip

The concepts of reliability and validity consistently generate a number of multiple-choice questions. In order to nail down the definition of reliability, you might mentally connect the "R" in reliability with the "R's" in repeatable results. Remember that a test can be reliable without being valid. For example, a driver's education course could have a written test that demonstrates reliability, but is not correlated with how well a student performs on an actual road test.

Test Tip

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Validity

A trustworthy test must also demonstrate validity. ***Validity*** is the ability of a test to measure what it was designed to measure. Valid test produce results that can be used to make accurate decisions. Just as there are several methods for measuring reliability, there are also several methods for measuring validity.

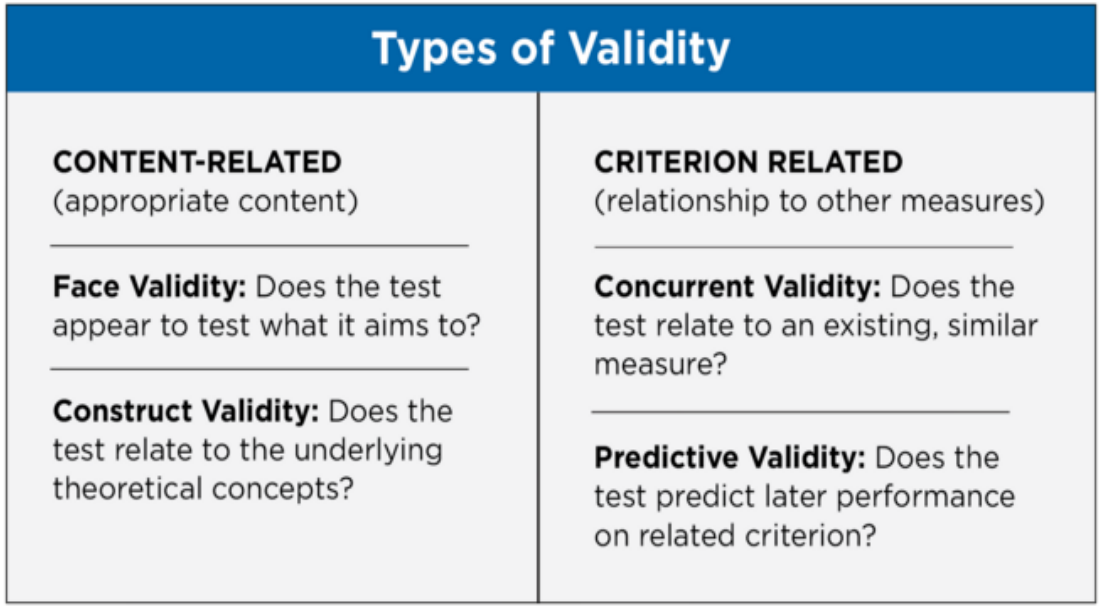
Face & content validity are measures of the extent to which the content of the test measures all of the knowledge or skills that are supposed to be included within the domain being tested, according to the test takers. For example, we expect the AP Psychology exam to ask a certain percentage of questions based on each unit using the percentage breakdown that they give us. The difference between the two is that in face validity, non-experts (like AP Psyche students) judge the measure, test, or survey; whereas in content validity "experts" (psychometricians) judge whether the test or survey is accurate.

Criterion-related validity is when test scores can be used to predict another relevant measure. For example, your AP Lit exam is an achievement test designed to measure your knowledge of the material in a college-level introductory literature course. The AP exam would demonstrate criterion validity if high scores on it are correlated with high scores in college lit courses. In other words, this type of validity compares the instrument (test or survey) to another behavior/performance.

Predictive validity is a measure of the extent to which the test accurately forecasts a specific future result. For example, the SAT is designed to predict how well someone will succeed in his/her freshman year in college. High scores on the SAT should predict high grades for the first year in college, if they don't they lose predictive validity.

Construct validity refers to the degree to which a test or other measure assesses the underlying theoretical construct it is supposed to measure (i.e., the test is measuring what it is purported to measure). As an example, think about a general knowledge test of basic algebra. If a test is designed to assess knowledge of facts concerning rate, time, distance, and their interrelationship with one another, but test questions are phrased in long and complex reading passages, then perhaps reading skills are inadvertently being measured instead of factual knowledge of basic algebra.

Can a test be reliable without being valid? Yes! A test CAN be reliable without being valid. However, a test cannot be valid unless it is reliable. An assessment can provide you with consistent results, making it reliable, but unless it is measuring what you are supposed to measure, it is not valid.



I can describe relevant labels related to intelligence testing (e.g., gifted, cognitively disabled).

INTELLECTUAL DISABILITY (INTELLECTUAL DEVELOPMENTAL DISORDER)

According to the DSM-5, ***Intellectual disability*** (intellectual developmental disorder); formerly mental retardation or developmentally delayed) is a neurodevelopmental disorder and is characterized by deficits in intellectual and adaptive functioning with four levels of severity (mild, moderate, severe, and profound). Genetic abnormalities, such as ***Down syndrome*** can cause intellectual disability. Prenatal exposure to alcohol, drugs, or other teratogens can also cause intellectual disability. This is typically associated with an IQ score approximately two standard deviations below the mean on the normal curve (70).

INTELLECTUAL GIFTEDNESS

The label ***"intellectually gifted***" is applied to individuals who score significantly above average in general intellectual functioning. Only about 1 to 3 percent of people are classified as being intellectually gifted. Lewis Terman conducted the best-known and most extensive study of gifted children. Terman identified 857 boys and 671 girls with IQs from 130 to 200. He then conducted a study by tracking the children's progress through school and into adulthood. Known as the "Termites," the gifted children went on to achieve a high level of academic and career success. Although most of the Termites led happy and fulfilling lives, their high IQ did not guarantee success. For example, the group's divorce rate nearly equaled the national average.

IQ and other test scores can be very powerful labels that affect how others see a person and how a person sees himself or herself. A ***self-fulfilling prophecy*** occurs when a person's expectations of another person lead that person to behave in the expected way.

Robert Rosenthal and ***Lenore Jacobson*** tested the effects of the self-fulfilling prophecy in an unidentified elementary school called "Oak School." The researchers informed elementary school teachers that about 20 percent of their students were academically gifted "spurters." In reality, Rosenthal and Jacobson randomly selected the "spurters." At the end of the year, the teachers demonstrated a self-fulfilling prophecy when they reported that the "spurters" were more curious, happier, and better adjusted than the other students. The "spurters" academic performance proved to be consistent with their teacher's biased expectations. They achieved high grades and made substantial gains in IQ points.

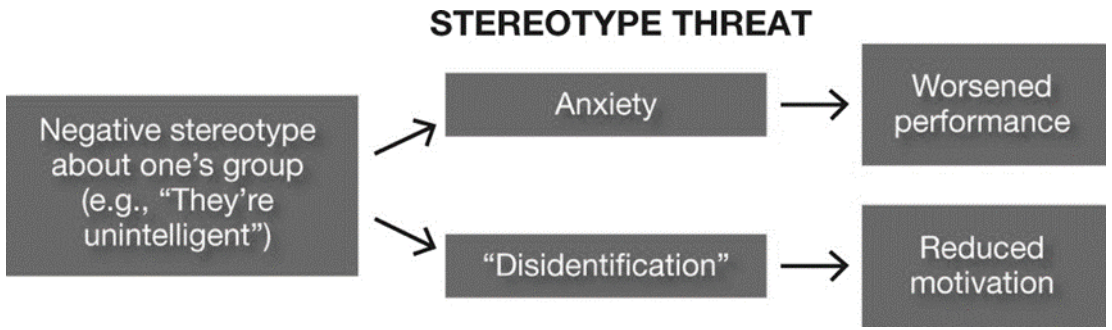
The concept of the self-fulfilling prophecy has played a particularly prominent role in the free-response questions of the AP Psychology exam. For example, in 1995, test writers asked students to explain how the self-fulfilling prophecy contributes to prejudice. In 2000, a free-response question asked how the self-fulfilling prophecy might affect student performance in a school without grades. It is very important to remember that a self-fulfilling prophecy can have both positive and negative effects.

Please watch: BRAINS VS. BIAS **Please read:** Study 13

Stereotype threat describes the experience of "being at risk of confirming, as self-characteristic, a negative stereotype of one's group" (Steel & Aronson, 1995). This social-psychological phenomenon has been shown to significantly decrease the performance of persons who belong to negatively stereotyped groups. These groups or units can refer to just about any type of social classification such as gender, race, religion, economic class, age, political affiliation, sexual orientation, etc.

Essentially, as long as a negative stereotype exists for a particular group and this negative stereotype is present in a given social setting, that group's members will likely feel a measure of anxiety which can prevent them from performing at their optimal level. Stereotype threat is most vividly observed in individuals who identify strongly with the negatively stereotyped social group, who identify with the intellectual domain in which they are being tested, and who expect discrimination – perhaps due to past experiences in their personal lives (Steele, Spencer & Aronson, 2002).

It is important to note though, that stereotype threat is not the primary cause of the disparity in performance between different social groups. These performance gaps might exist even when stereotype threat is eliminated from a particular setting. However, the gaps have been shown to widen when stereotype threat is introduced into the testing environment (American Psychological Association, 2006). Additionally, persons do not necessarily need to believe the stereotypes that negatively label their social groups to be affected by stereotype threat. The realization that other persons might believe the stereotype is enough to trigger anxiety in the sufferer and lead to a drop in performance.



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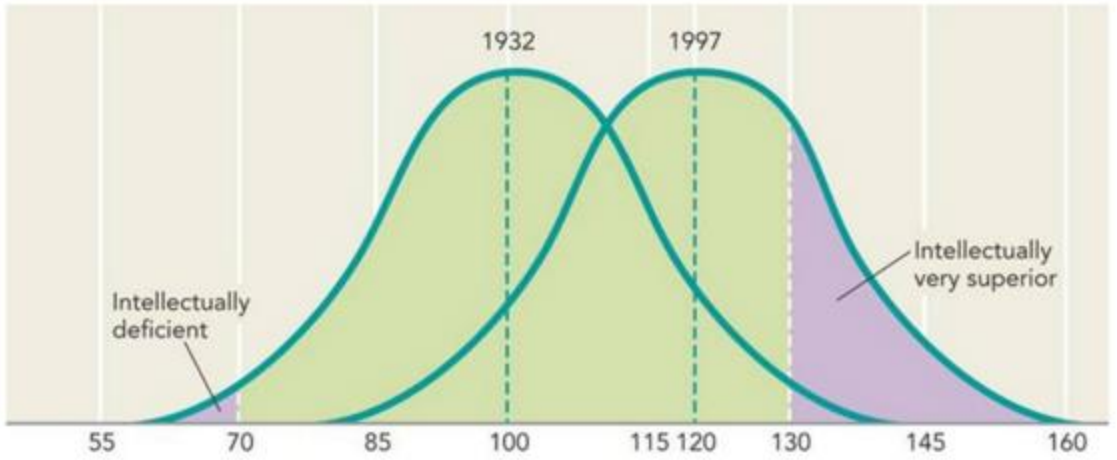
Heredity & Environment & Intelligence (Nature v. Nurture)

Nature: Studies of identical twins support the hypothesis that intelligence is, in part, inherited. For example, the IQ correlation for pairs of identical twins is greater than for pairs of fraternal twins. Studies of adopted children show that their IQs are more strongly correlated with their biological mother's IQ than with their adoptive mother's IQ.

Nurture: Studies of identical twins reared separately support the hypothesis that environment plays an important role in determining IQ. For example, the correlation between the IQ scores of identical twins reared separately is lower than those of identical twins reared together. The IQs of children from deprived environments who have been moved into middle- and upper-class foster or adoptive families tend to increase. School attendance seems to positively correlate in increased IQ scores.

For more information on this study read: Study 3

Performance on IQ tests has been increasing steadily over the past three generations. This trend was noticed by James Flynn, who observed that every time tests were re-normed, more questions needed to be answered correctly to earn the same score, yet the same proportion of the population was earning that score. In other words, a score of 100 on a present test is equivalent to a score of about 120 on a test from 70 years ago. This ***Flynn effect*** cannot be attributed to a change in the human gene pool because that would take hundreds of years. Theorists attribute the Flynn effect to a number of environmental factors, including better nutrition, better health care, advances in technology, smaller families, better parenting, and increased access to educational opportunities.



Nature v. Nurture Controversy: Some researchers have argued that racial differences in IQ scores provide evidence that intelligence is largely genetically determined. The majority of psychologists disagree, arguing that these racial differences are more likely explained by differences in environments, particularly by socioeconomic factors. Many researchers argue that the greater poverty level in many minority populations, an environmental factor, is the main cause of the disparity in test scores and not a difference in genetics.

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I can debate the appropriate testing practices, particularly in relation to culture-fair test uses.

On average, migrants and people from cultures other than American and European, tend to score lower on IQ tests. Some people have interpreted this as evidence that people from non-white cultures are less smart by nature. However, this conclusion is incorrect. Researchers generally attribute these differences to environmental factors more than genetics. Stress, household environments, and socioeconomic status all affect the scores. In most cases, the intelligence tests used are not culture-fair. Culture-fair intelligence tests are designed to minimize cultural bias in these types of assessments. They may use questions that would be familiar to people from a variety of backgrounds. They contain fewer verbal instructions and the questions relate to images or puzzles. As they focus more on logical reasoning, they are better suited for people from different cultures. One example of these tests is Raven's Progressive Matrices (A sample question is shown below, the aim is to identify the most appropriate match out of the given eight. Here, the eighth figure is the most appropriate match among the given options).

Over-learning

JOHN GABRIELI M.I.T. LECTURE 14: INTELLIGENCE

Abnormal Psychology

In this portion of the course, students examine the nature of common challenges to adaptive functioning. This section emphasizes formal conventions that guide psychologists' judgments about diagnosis and problem severity.

Myers Modules 65-69 pages 649-706

7 to 9% of AP Course

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Objectives

- ☐ I can describe contemporary and historical conceptions of what constitutes psychological disorders.
- ☐ I can recognize the use of the Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association as the primary reference for making diagnostic judgments.
- ☐ I can discuss the major diagnostic categories, including anxiety and somatoform disorders, mood disorders, schizophrenia, organic disturbance, personality disorders, and dissociative disorders, and their corresponding symptoms.
- ☐ I can evaluate the strengths and limitations of various approaches to explaining psychological disorders: medical model, psychoanalytic, humanistic, cognitive, biological, and sociocultural.
- ☐ I can identify the positive and negative consequences of diagnostic labels (e.g., the Rosenhan study).
- ☐ I can discuss the intersection between psychology and the legal system (e.g.,confidentiality, insanity defense).

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Define and Apply the following the following Vocab and/or concepts

psychological disorder
attention-deficit/hyperactivity disorder (ADHD)
medical model
DSM-5
anxiety disorders
generalized anxiety disorder
panic disorder
phobia
social anxiety disorder
agoraphobia
obsessive-compulsive disorder (OCD)
post-traumatic stress disorder (PTSD)
post-traumatic growth
mood disorders
major depressive disorder
mania
bipolar disorder
rumination
schizophrenia
psychosis
delusions
hallucination
somatic symptom disorder
conversion disorder
illness anxiety disorder
dissociative disorders
dissociative identity disorder (DID)
anorexia nervosa
bulimia nervosa
binge-eating disorder
personality disorders
antisocial personality disorder

Key People:

Philippe Pinel
David Rosenhan

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I can describe contemporary and historical conceptions of what constitutes psychological disorders

Defining Abnormal Behavior- Defining abnormal behavior and showing how it is different from normal behavior is difficult and controversial. A common definition of abnormal behavior is behavior that is personally disturbing or disabling, or culturally so deviant that others judge it as maladaptive, inappropriate, or unjustifiable. Atypical or deviant means that, statistically, the behavior is rare and has a very low probability of occurring.

FOUR BASIC STANDARDS

1. Abnormal behavior is unusual. It occurs infrequently in a given population.

2. Abnormal behavior is maladaptive. It interferes with a person's ability to function normally in one or more important areas of life.

3. Abnormal behavior is disturbing to others. It represents a serious departure from social and cultural norms of behavior.

4. Abnormal behavior is distressful. It prevents a person from thinking clearly and making rational decisions.

Note that people may be diagnosed with a psychological disorder even if they are not experiencing all, or even most, of the above symptoms.

I can recognize the use of the Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association as the primary reference for making diagnostic judgments.

THE DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (DSM-5)

DSM-5 stands for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.

Clinicians and researchers from a wide range of specialized areas collaborated to create the manual.
The DSM-5 provides a set of diagnostic categories for classifying over 300 specific psychological disorders.

The DSM-5 lists the criteria and specific symptoms for each mental disorder and is designed to generate reliable and valid diagnoses.

Be sure that you can identify the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as the handbook used by medical and mental health professionals for the diagnosis of mental illness. The DSM-5 typically generates at least one multiple-choice question on each AP Psychology exam.

I can evaluate the strengths and limitations of various approaches to explaining psychological disorders: medical model, psychoanalytic, humanistic, cognitive, biological, and sociocultural.

THEORIES OF ABNORMAL BEHAVIOR

The Medical model / Biological

The medical model of psychopathology believes that disorders have an organic or physical cause. The focus of this approach is on genetics, neurotransmitters, neurophysiology, neuroanatomy, biochemistry, etc. For example, in terms of biochemistry – the dopamine hypothesis argues that elevated levels of dopamine are related to symptoms of schizophrenia. ***Philippe Pinel*** and Emil Kraepelin created two of the first medical classification systems for psychological disorders

The approach argues that mental disorders are related to the physical structure and functioning of the brain. For example, differences in brain structure (abnormalities in the frontal and pre-frontal cortex, enlarged ventricles) have been identified in people with schizophrenia.

Psychodynamic

The main assumptions include Freud's belief that abnormality came from psychological causes rather than physical causes, that unresolved conflicts between the id, ego, and superego can all contribute to abnormality, for example:

Weak ego: Well-adjusted people have a strong ego that is able to cope with the demands of both the id and the superego by allowing each to express itself at appropriate times. If, however, the ego is weakened, then either the id or the superego, whichever is stronger, may dominate the personality.

Unchecked id impulses: If id impulses are unchecked they may be expressed in self-destructive and immoral behavior. This may lead to disorders such as conduct disorders in childhood and psychopathic [dangerously abnormal] behavior in adulthood.

Too powerful superego: A superego that is too powerful, and therefore too harsh and inflexible in its moral values, will restrict the id to such an extent that the person will be deprived of even socially acceptable pleasures. According to Freud, this would create neurosis, which could be expressed in the symptoms of anxiety disorders, such as phobias and obsessions.

Humanist

The humanist perspective looks to a person's feelings, self-esteem, and self-concept for the causes of mental behavior. Humanists believe that behavior is the result of choices we make in struggling to find meaning in life. For example, anxiety can result when an individual experiences a gap between his or her ideal self and his or her real self.

Cognitive
The cognitive approach assumes that a person's thoughts are responsible for their behavior. The model deals with how information is processed in the brain and the impact of this on behavior.

The basic assumptions are:

1. Maladaptive behavior is caused by faulty and irrational cognitions.
2. It is the way you think about a problem, rather than the problem itself that causes mental disorders.
3. Individuals can overcome mental disorders by learning to use more appropriate cognitions.

The individual is an active processor of information. How a person, perceives, anticipates, and evaluates events rather than the events themselves, which will have an impact on behavior. This is generally believed to be an automatic process, in other words, we do not think about it. In people with psychological problems, these thought processes tend to be negative and the cognitions (i.e. attributions, cognitive errors) made will be inaccurate: These cognitions cause distortions in the way we see things; Ellis suggested it is through irrational thinking, while Beck proposed the cognitive triad.

Behavioral
Behaviorists believe that our actions are determined largely by the experiences we have in life, rather than by the underlying pathology of unconscious forces. Abnormality is therefore seen as the development of behavior patterns that are considered maladaptive (i.e. harmful) for the individual. Behaviorism states that all behavior (including abnormal) is learned from the environment (nurture) and that all behavior that has been learned can also be 'unlearnt' (which is how abnormal behavior is treated). The emphasis of the behavioral approach is on the environment and how abnormal behavior is acquired, through classical conditioning, operant conditioning, and social learning.

Classical conditioning has been said to account for the development of ***phobias.*** The feared object (e.g. spider or rat) is associated with a fear or anxiety sometime in the past. The conditioned stimulus subsequently evokes a powerful fear response characterized by avoidance of the feared object and the emotion of fear whenever the object is encountered.

Learning environments can reinforce (re: operant conditioning) problematic behaviors. E.g. an individual may be rewarded for having panic attacks by receiving attention from family and friends – this would lead to the behavior being reinforced and increasing in later life.

Our society can also provide deviant maladaptive models that children identify with and imitate (re: social learning theory).

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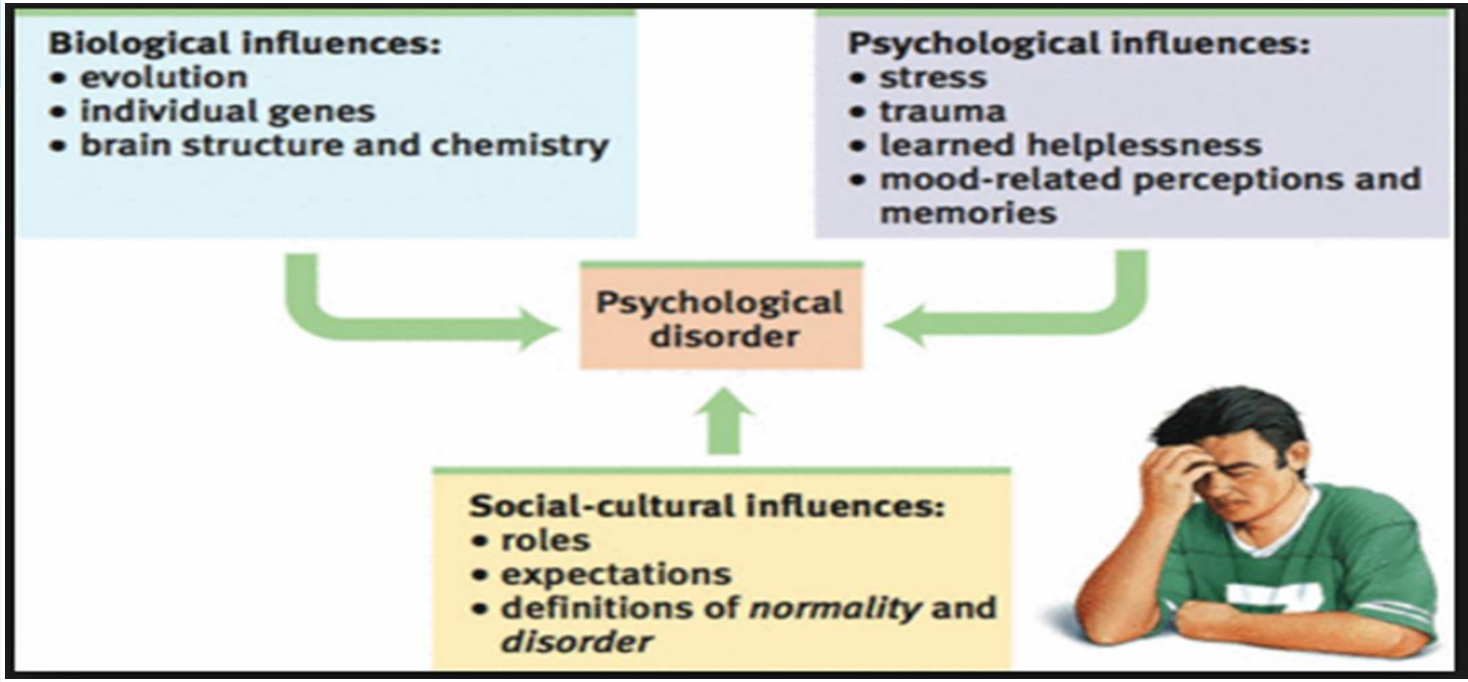
Psychological School/Perspective	Cause of the Disorder
Psychoanalytic/Psychodynamic	Internal, unconscious drives, root in childhood
Humanistic	Failure to strive to one's potential or being out of touch with one's feelings, being too sensitive to others' criticisms/judgments, lack of positive regard as a child
Behavioral	Reinforcement history, the environment. At some point the abnormal behavior has been rewarded or reinforced & is now an established pattern of behavior
Cognitive	Irrational, illogical, dysfunctional thoughts or ways of thinking lead us to misperceive the world (leading to abnormal behavior)
Sociocultural	Society & culture help define what is acceptable behavior
Biological/Neuroscience	Organic problems, biochemical imbalances, genetic predispositions (very popular in US right now)

Please Watch: [PSYCHOLOGICAL DISORDERS]



Percentage of Americans Reporting Certain Psychological Disorders in the Past Year

Disorder	Percentage
Generalized anxiety	3.1
Social anxiety disorder	6.8
Phobia of specific object or situation	8.7
Mood disorder	9.5
Obsessive-compulsive disorder (OCD)	1.0
Schizophrenia	1.1
Posttraumatic stress disorder (PTSD)	3.5
Attention-deficit/hyperactivity disorder (ADHD)	4.1

I can discuss the major diagnostic categories, including anxiety and somatoform disorders, mood disorders, schizophrenia, organic disturbance, personality disorders, and dissociative disorders, and their corresponding symptoms.

ANXIETY DISORDERS

GENERAL CHARACTERISTICS- ***Anxiety disorders*** all involve extreme levels of fear and anxiety which negatively impact behavior and cognitive processes. They differ in terms of the types of scenarios which generate fear or anxiety, and in what types of thoughts result. Anxiety is a feeling of tension, apprehension, and worry that occurs during a personal crisis or the pressures of everyday life. Anxiety is a normal human response to stress. In contrast, pathological anxiety is irrational, uncontrollable, and disruptive.

Pathological anxiety is irrational because it is provoked by nonexistent or exaggerated threats. Pathological anxiety is uncontrollable because the person cannot control or stop anxiety attacks. Pathological anxiety is disruptive because it impairs relationships and everyday activities. Generalized anxiety disorder, panic disorder, phobias, and agoraphobia are the main types of anxiety disorders.

GENERALIZED ANXIETY DISORDER (GAD) - Characterized by persistent, uncontrollable, and ongoing apprehension about a wide range of life situations. This free-floating anxiety can lead to chronic fatigue and irritability. GAD affects twice as many women as men.

PANIC DISORDER - Characterized by sudden episodes of extreme anxiety in the form of panic attacks and persistent concern about having future attacks. Panic attacks are accompanied by a pounding heart, rapid breathing, sudden dizziness, and a feeling of lightheadedness.

PHOBIAS - Characterized by a strong, irrational fear of specific objects or situations that are normally considered harmless.

AGORAPHOBIA - Characterized by an irrational fear of public places or open spaces due to the concern that the individual will not be able to escape or receive help if needed. Agoraphobics avoid crowded locations.

Social Anxiety Disorder- Also known as social phobia, is an anxiety disorder involving discomfort around social interaction, and concern about being embarrassed and judged by others (NIH, 2014). This discomfort will be experienced as fear and anxiety and will be accompanied by autonomic arousal.

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POSTTRAUMATIC STRESS DISORDER (PTSD)- Characterized by exposure to actual or threatened death, serious injury, or violence resulting in feelings of horror and helplessness. Individuals can also develop PTSD if they learn that a traumatic event happened to a close friend or family member. People who suffer from PTSD experience intrusive symptoms including reoccurring, involuntary, and distressing memories of the event. This disorder can lead to depression, anxiety, uncontrollable crying, edginess, and the inability to concentrate.

OBSESSIVE-COMPULSIVE AND RELATED DISORDERS (OCD)- Characterized by unwanted anxiety-producing thoughts and/ or repetitive behaviors. Obsessive-compulsive disorder, body dysmorphic disorder, hoarding, and trichotillomania (hair-pulling disorder) are the main disorders in this category. Characterized by persistent unwanted thoughts (obsessions), which often cause distress or anxiety, and/or repetitive behaviors (compulsions) the individuals feel they must perform in order to reduce anxiety. Obsessions and compulsions are time-consuming and cause significant distress. Compulsive behaviors can include excessive washing, repeatedly checking to make sure that doors are locked, and turning lights on and off.

Biopsychosocial approach to Anxiety Disorders, OCD, and PTSD

Biological Perspective

Natural Selection and Evolution
Exaggerations of fears and behaviors that contributed to our species' survival.

Gene and their regulation of neurotransmitters such as serotonin and glutamate

Hyperactivity in specific areas of the brain such as the anterior cingulate cortex and amygdala.

Psychological Perspective

Classically conditioned fear to a stimulus
Stimulus generalization
Reinforcement helps maintain behaviors

Cognition- our interpretation and irrational beliefs can cause feelings of anxiety

Psychodynamic- phobias are based on anxiety reactions of the id that have been repressed by the ego. In other words, the currently feared object is not the original subject of the fear.

Social Perspective

Observational learning- observing other's fears.

Society definition of what is normal and what is a disorder.

Please watch: OCD & ANXIETY DISORDERS

Please Watch: TRAUMA & ADDICTION

Mood Disorders

Mood Disorders are characterized by emotional extremes. Depressive disorders are serious disturbances in a person's emotions that involve loss of pleasure, sleep problems, lack of concentration, negative thoughts, or a suicidal ideation. Depressive disorders cause psychological discomfort and impair a person's ability to function. Major depression, persistent depressive disorder (dysthymia), and disruptive mood dysregulation disorder are the main types of depressive disorders.

MAJOR DEPRESSIVE DISORDER - Characterized by a lasting and continuous depressed mood. People suffering from major depression often feel deeply discouraged and lethargic. Pulitzer Prize-winning author William Styron described his depression as being "like some poisonous fogbank rolling in upon my mind, forcing me into bed. There I would lie for as long as six hours, stuporous and virtually paralyzed, gazing at the ceiling . . ."

Major depression often leads to suicidal feelings. Approximately 10 percent of those suffering from major depression attempt suicide. For example, Kurt Cobain, the lead Singer, and guitarist of the rock band Nirvana, had a long history of depression. Cobain committed suicide in 1994 when the 27-year-old musician was at the height of his fame.

BIPOLAR AND OTHER RELATED DISORDERS - Characterized by periods of both depression and mania or hypomania. Bipolar disorders were formerly considered types of mood disorders but were made into a separate category in the DSM-5. Bipolar I, bipolar II, and cyclothymic disorder are the main types of bipolar and related disorders.

BIPOLAR I DISORDER – Characterized by periods of both depression and ***mania***. During a manic episode, the individual is hyperactive and may not sleep for days at a time. Sufferers frequently exhibit racing thoughts known as the flight of ideas, a shortened attention span, and an inflated sense of importance. The bipolar roller coaster has affected several creative writers and artists. For example, Edgar Allan Poe and Vincent van Gogh both showed signs of bipolar disorder.

Diagnosing Major Depressive Disorder

The DSM-5 classifies major depressive disorder as the presence of at least five of the following symptoms over a two-week period of time (including depressed mood or loss of interest/ pleasure). The symptoms must cause near-daily distress or impairment and not be attributable to substance use or another medical or mental illness.

- Depressed mood most of the day
- Loss of interest or pleasure in activities most of the day
- Significant weight loss or gain when not dieting, or significant decrease or increase in appetite
- Insomnia or sleeping too much
- Physical agitation or lethargy
- Fatigue or loss of energy
- Feeling worthless or excessive/inappropriate guilt
- Problems in thinking, concentrating, or making decisions
- Recurrent thoughts of death and suicide

Bipolar Disorder

Biopsychosocial approach to Mood Disorders

Biological Perspective

Genetics and heredity factors.

Low activity of two neurotransmitters—norepinephrine and serotonin

The endocrine system

People with depression have been found to have abnormal levels of cortisol, which is released by the adrenal glands during times of stress

People with depression have been found to have abnormal melatonin Secretion

Likely brain areas in the circuit include: the prefrontal cortex, hippocampus, amygdala, and Brodmann's Area 25

Psychological Perspective

Psychodynamic
Depression may be triggered by a major loss. Early losses set the stage for later depression. People whose childhood needs were improperly met and are more likely to become depressed after experiencing a loss.

Behavioral
Depression results from significant changes in the rewards and punishments people receive. The positive rewards in life dwindle for some people, leading them to perform fewer and fewer constructive behaviors and they spiral toward depression.

Cognitive views
Compulsive Negative thinking ***(Rumination***)
Maladaptive attitudes
Self-defeating attitudes childhood
Minimization of the positive
Learned Helplessness

Social Perspective

Mood disorders impacted by social context

Social Rewards

People whose lives are isolated and without intimacy are particularly likely to become depressed at times of stress

Gender and Depression

Please Watch:
DEPRESSIVE AND BIPOLAR DISORDERS

For more detail please click on the link below:

http://bcs.worthpublishers.com/WebPub/Psychology/comerabpsych8e/IRM/COMER%20IR%20105-118.pdf

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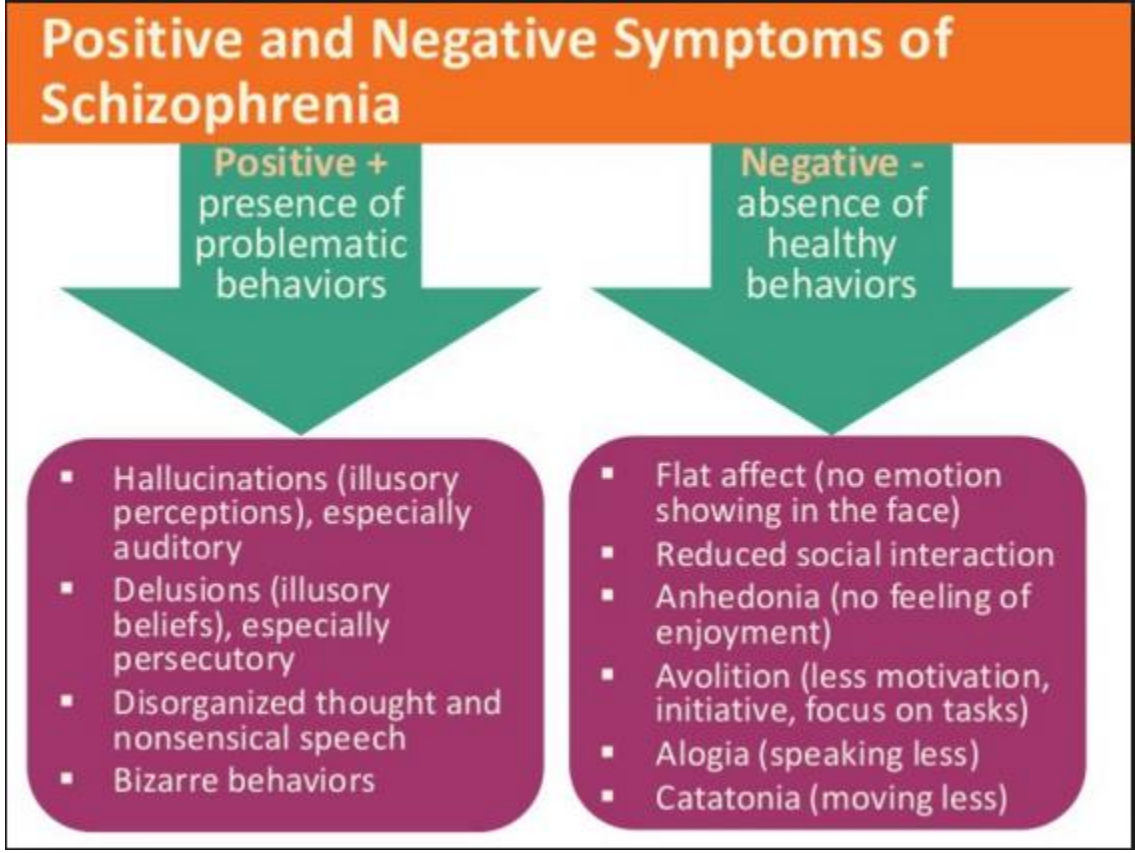
SCHIZOPHRENIA

Is a split from reality that shows itself in disturbed perceptions, disorganized thinking and speech, and diminished and/or inappropriate emotional expression. As such it is the chief example of a ***psychosis***, A psychotic disorder marked by irrationality and lost contact with reality.



PREVALENCE AND IMPORTANCE

Schizophrenia affects approximately 1 percent of the U.S. population. Approximately half of all people admitted to mental hospitals are diagnosed with schizophrenia. Schizophrenia typically begins in late adolescence or early adulthood. It rarely emerges before adolescence or after age 45. Schizophrenia is equally prevalent in men and women.

CHARACTERISTIC SYMPTOMS

Delusional beliefs

A delusion is a bizarre or farfetched belief that continues despite competing contradictory evidence. People suffering from schizophrenia often experience delusions of persecution or grandeur. In a delusion of persecution, people believe that spies, aliens, or even neighbors are plotting to harm them. In a delusion of grandeur, people believe they are someone very powerful or important, such as an Old Testament king or a modern ruler.

Hallucinations

A hallucination is a false or distorted perception that seems vividly real to the person experiencing it. Although hallucinations can be visual, or even olfactory, people with schizophrenia often report hearing voices that comment on their behavior or tell them what to do. Disorganized speech and thought. Disorganized speech and thought include creating artificial words and jumbling words and phrases together. This incoherent form of speech is often called a word salad. A lack of contact with reality is the most common thought disturbance experienced by people with schizophrenia.

Emotional and behavioral disturbances

The emotions of people with schizophrenia range from exaggerated and inappropriate reactions to a flat affect, showing no emotional or facial expressions. People with schizophrenia often exhibit unusual and wide-ranging behaviors, from shaking their heads to remove unwanted thoughts to assuming an immobile stance for an extended period.

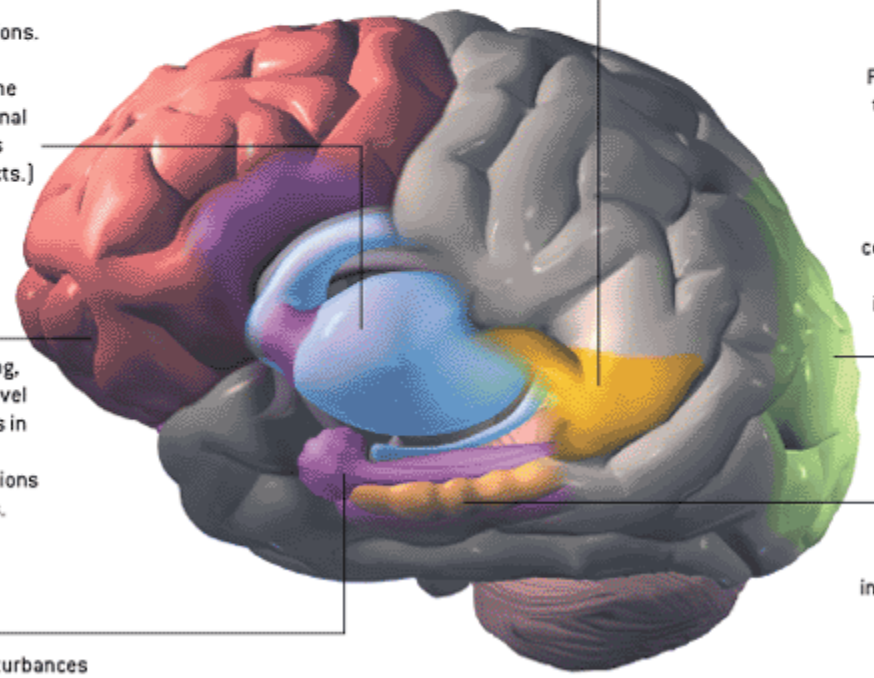
Test Tip

Schizophrenia is by far the most tested type of abnormal behavior on the AP Psychology exam. It always generates at least one, and often two, multiple-choice questions. The 2007 AP Psychology exam devoted an entire free-response question to schizophrenia. Be sure you can identify hallucinations, delusions, and fragmented thinking as key symptoms of schizophrenia. In addition, review the research findings that support the dopamine hypothesis and the genetic basis for schizophrenia.

Test Tip

THE BRAIN IN SCHIZOPHRENIA

MANY BRAIN REGIONS and systems operate abnormally in schizophrenia, including those highlighted below. Imbalances in the neurotransmitter dopamine were once thought to be the prime cause of schizophrenia. But new findings suggest that impoverished signaling by the more pervasive neurotransmitter glutamate—or, more specifically, by one of glutamate's key targets on neurons (the NMDA receptor)—better explains the wide range of symptoms in this disorder.



BASAL GANGLIA
Involved in movement and emotions and in integrating sensory information. Abnormal functioning in schizophrenia is thought to contribute to paranoia and hallucinations. (Excessive blockade of dopamine receptors in the basal ganglia by traditional antipsychotic medicines leads to motor side effects.)

AUDITORY SYSTEM
Enables humans to hear and understand speech. In schizophrenia, overactivity of the speech area (called Wernicke's area) can create auditory hallucinations—the illusion that internally generated thoughts are real voices coming from the outside.

OCCIPITAL LOBE
Processes information about the visual world. People with schizophrenia rarely have full-blown visual hallucinations, but disturbances in this area contribute to such difficulties as interpreting complex images, recognizing motion, and reading emotions on others' faces.

FRONTAL LOBE
Critical to problem solving, insight and other high-level reasoning. Perturbations in schizophrenia lead to difficulty in planning actions and organizing thoughts.

HIPPOCAMPUS
Mediates learning and memory formation, intertwined functions that are impaired in schizophrenia.

LIMBIC SYSTEM
Involved in emotion. Disturbances are thought to contribute to the agitation frequently seen in schizophrenia.

ALFRED T. KAMAJIAN

EXPLAINING SCHIZOPHRENIA

The genetic basis for schizophrenia

The lifetime risk of developing schizophrenia increases with genetic similarity. People who share more genes with a person who has schizophrenia are more likely to develop the disorder.

Schizophrenia tends to cluster in certain families. Adoption studies have consistently shown that if either biological parent has schizophrenia, the adopted individual is at a greater risk to develop schizophrenia. If one identical twin develops schizophrenia, the risk rate for the other twin is 48 percent.

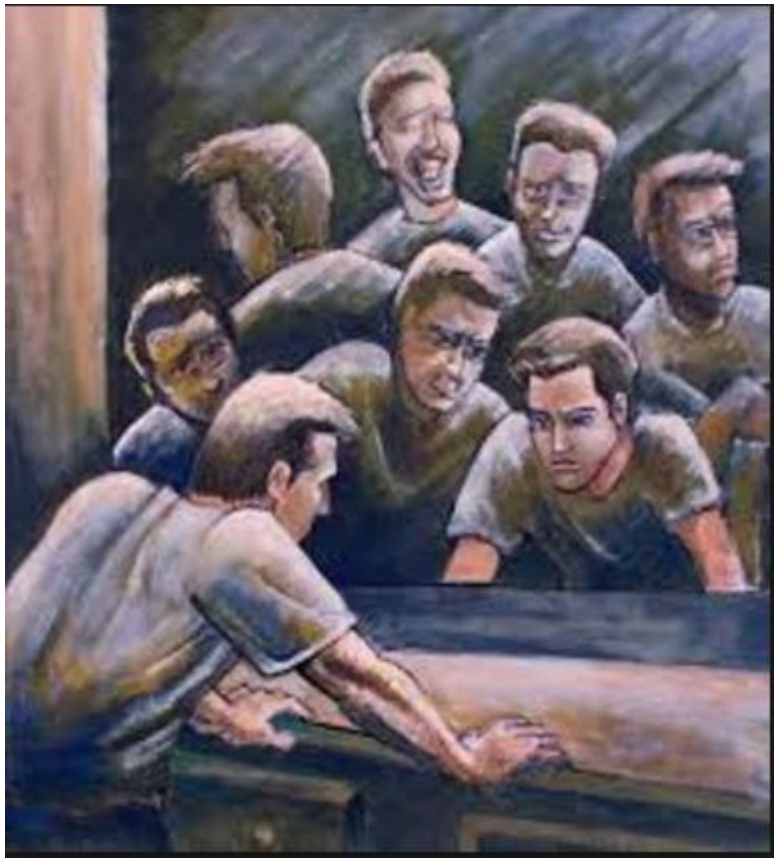
The dopamine hypothesis

According to the dopamine hypothesis, the overactivity of certain dopamine neurons in the brain may contribute to some forms of schizophrenia. Drugs that increase the amount of dopamine can produce or worsen some symptoms of schizophrenia. Drugs that block dopamine activity can reduce or eliminate some symptoms of schizophrenia.

The diathesis-stress model

People may have either an inherited or environmental predisposition that increases their risk for schizophrenia (diathesis). Stressful life experiences then trigger schizophrenic episodes.

DISSOCIATIVE DISORDERS



GENERAL CHARACTERISTICS - Dissociative disorders all involve a splitting apart of significant aspects of a person's awareness, memory, or identity. Individuals who experience dissociative disorders have a compelling need to escape from anxiety and stress. Dissociative identity disorder (DID) and dissociative amnesia are the main disorders in this category.

DISSOCIATIVE IDENTITY DISORDER (DID) - Characterized by the presence of two or more distinct personality systems in the same individual. Each personality has its name, unique memories, behaviors, and self-image. Despite the revisions in the DSM-5 many researchers and mental health professionals continue to question if DID is a genuine psychological disorder. Skeptics believe that many of the reported cases are not supported by strong scientific evidence.

DISSOCIATIVE AMNESIA - Characterized by a partial or total inability to recall past experiences, autobiographical information, and important information that is different from normal forgetting. Individuals may have amnesia for specific events or overall amnesia for their personal identity and life history. Typically a response to traumatic events or extremely stressful situations such as marital problems and military combat. May be accompanied by dissociative fugue which is sudden and inexplicable travel associated with amnesia. While in a fugue state, the person experiences amnesia, but can otherwise function normally.

Please Watch: **SCHIZOPHRENIA & DISSOCIATIVE DISORDERS**

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PERSONALITY DISORDERS

GENERAL CHARACTERISTICS

Well-adjusted people can modify their personality traits as they adjust to different social experiences. In contrast, people with personality disorders are inflexible and maladaptive across a broad range of situations. Personality disorders usually become evident during adolescence or early adulthood.

The four defining features of personality disorders are:

1) Distorted thinking patterns,
2) Problematic emotional responses,
3) Over- or under-regulated impulse control, and
4) Interpersonal difficulties.

These four core features are common to all personality disorders. Before a diagnosis is made, a person must demonstrate significant and enduring difficulties in at least two of those four areas. Furthermore, personality disorders are *not* usually *diagnosed in children* because of the requirement that personality disorders represent enduring problems across time.

These four key features combine in various ways to form ten specific personality disorders identified in *DSM-5* (APA, 2013). Each disorder lists an asset of criteria reflecting observable characteristics associated with that disorder. To be diagnosed with a specific personality disorder, a person must meet the minimum number of criteria established for that disorder. Furthermore, to meet the diagnostic requirements for a psychiatric disorder, the symptoms must cause functional impairment and/or subjective distress. This means the symptoms are distressing to the person with the disorder and/or the symptoms make it difficult for them to function well in society.

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Please Watch: PERSONALITY DISORDERS

Cluster A is called the odd, eccentric cluster. It includes Paranoid Personality Disorder, Schizoid Personality Disorder, and Schizotypal Personality Disorders. The common features of the personality disorders in this cluster are social awkwardness and social withdrawal. These disorders are dominated by distorted thinking.

Paranoid Personality Disorder

Paranoid Personality Disorder* is characterized by a pervasive distrust and suspiciousness of other people.

- People with this disorder assume that others are out to harm them, take advantage of them, or humiliate them in some way.
- They put a lot of effort into protecting themselves and keeping their distance from others.
- They are known to preemptively attack others whom they feel threatened.
- They tend to hold grudges, are litigious, and display pathological jealousy.
- Distorted thinking is evident. Their perception of the environment includes reading malevolent intentions into genuinely harmless, innocuous comments or behavior, and dwelling on past slights. ◦For these reasons, they do not confide in others and do not allow themselves to develop close relationships.

- Their emotional life tends to be dominated by distrust and hostility.

Schizoid Personality Disorder

Schizoid Personality Disorder* is characterized by a pervasive pattern of social detachment and a restricted range of emotional expression. For these reasons, people with this disorder tend to be socially isolated. They don't seem to seek out or enjoy close relationships.

- They almost always chose solitary activities, and seem to take little pleasure in life.
- These "loners" often prefer mechanical or abstract activities that involve little human interaction and appear indifferent to both criticism and praise.
- Emotionally, they seem aloof, detached, and cold.
- They may be oblivious to social nuance and social cues causing them to appear socially inept and superficial.
- Their restricted emotional range and failure to reciprocate gestures or facial expressions (such as smiles or nods of agreement) cause them to appear rather dull, bland, or inattentive.

The Schizoid Personality Disorder appears to be rather rare.

Schizotypal Personality Disorder

Persons with Schizotypal Personality Disorder* are characterized by a pervasive pattern of social and interpersonal limitations. They experience acute discomfort in social settings and have a reduced capacity for close relationships. For these reasons, they tend to be socially isolated, reserved, and distant.

- Unlike Schizoid Personality Disorder, they also experience perceptual and cognitive distortions and/or eccentric behavior. ◦These perceptual abnormalities may include noticing flashes of light no one else can see, seeing objects or shadows in the corner of their eyes, and then realizing that nothing is there.

- People with Schizotypal Personality Disorder have odd beliefs, for instance, they may believe they can read other people's thoughts, or that their thoughts have been stolen from their heads. ◦These odd or superstitious beliefs and fantasies are inconsistent with cultural norms.

- Schizotypal Personality Disorder tends to be found more frequently in families where someone has been diagnosed with Schizophrenia; a severe mental disorder with the defining feature of psychosis (the loss of reality testing). There is some indication that these two distinct disorders share genetic commonalities (Coccaro & Siever, 2005).

** It is important to remember that everyone can exhibit some of these personality traits from time to time. To meet the diagnostic requirement of a personality disorder, these traits must be inflexible; i.e., they can be regularly observed without regard to time, place, or circumstance.*

Cluster B: Borderline Personality Disorder, Narcissistic Personality Disorder, Histrionic Personality Disorder, Antisocial Personality Disorder.
Disorders in this cluster share problems with impulse control and emotional regulation.

Antisocial Personality Disorder- Antisocial Personality Disorder is characterized by a pervasive pattern of disregard for the rights of other people that often manifests as hostility and/or aggression. Deceit and manipulation are also central features. In many cases, hostile-aggressive and deceitful behaviors may first appear during childhood.

These children may hurt or torment animals or people.
They may engage in hostile acts such as bullying or intimidating others.
They may have a reckless disregard for property such as setting fires.
They often engage in deceit, theft, and other serious violations of standard rules of conduct.

When this is the case, Conduct Disorder (a juvenile form of Antisocial Personality Disorder) may be an appropriate diagnosis.

Conduct Disorder is often considered the precursor to an Antisocial Personality Disorder. In addition to reckless disregard for others, they often place themselves in dangerous or risky situations. They frequently act on impulsive urges without considering the consequences. This difficulty with impulse control results in loss of employment, accidents, legal difficulties, and incarceration.

Persons with Antisocial Personality Disorder typically do not experience genuine remorse for the harm they cause others. However, they can become quite adept at feigning remorse when it is in their best interest to do so (such as when standing before a judge).

They take little to no responsibility for their actions. In fact, they will often blame their victims for "causing" their wrong actions or deserving of their fate. The aggressive features of this personality disorder make it stand out among other personality disorders as individuals with this disorder take a unique toll on society.

Narcissistic Personality Disorder-People with Narcissistic Personality Disorder have significant problems with their sense of self-worth stemming from a powerful sense of entitlement.

People with Narcissistic Personality Disorder…
•Are preoccupied with fantasies of unlimited success and power.

• get so caught up in their fantasies that they don't put any effort into their daily life and don't direct their energies toward accomplishing their goals.

•Believe that they are special and deserve special treatment.

•Often feel devastated and angry when they realize that they have normal, average human limitations.

•Their need to be powerful, and admired, coupled with a lack of empathy for others, makes for conflictual relationships that are often superficial and devoid of real intimacy and caring.

Status is very important to people with Narcissistic Personality Disorder.

However, the same is true of their self-judgments. They tend to vacillate between feeling like they have unlimited abilities, and then feeling deflated, worthless and devastated when they encounter their normal, average human limitations. Despite their bravado, people with Narcissistic Personality Disorder require a lot of admiration from other people to bolster their fragile self-esteem.

Histrionic Personality Disorder- Persons with Histrionic Personality Disorder are characterized by a pattern of excessive emotionality and attention seeking. Their lives are full of drama (so-called "drama queens"). They are uncomfortable in situations where they are not the center of attention.

People with this disorder are often quite flirtatious or seductive and like to dress in a manner that draws attention to them.

They can be flamboyant and theatrical, exhibiting an exaggerated degree of emotional expression.

Yet simultaneously, their emotional expression is vague, shallow, and lacking in detail. This gives them the appearance of being disingenuous and insincere.

Moreover, the drama and exaggerated emotional expression often embarrasses friends and acquaintances as they may embrace even casual acquaintances with excessive ardor, or may sob uncontrollably over some minor sentimentality.

People with Histrionic Personality Disorder can appear flighty and fickle. Their behavioral style often gets in the way of truly intimate relationships, but it is also the case that they are uncomfortable being alone.

They tend to feel depressed when they are not the center of attention. When they are in relationships, they often imagine relationships to be more intimate in nature than they are.

People with Histrionic Personality Disorder tend to be suggestible; that is, they are easily influenced by other people's suggestions and opinions.

Borderline Personality Disorder- Borderline Personality Disorder is one of the most widely studied personality disorders. People with Borderline Personality Disorder tend to experience intense and unstable emotions and moods that can shift fairly quickly. They generally have a hard time calming down once they have become upset. As a result, they frequently have angry outbursts and engage in impulsive behaviors such as substance abuse, risky sexual liaisons, self-injury, overspending, or binge eating. These behaviors often function to soothe them in the short-term but harm them in the longer term. Angry woman

•People with Borderline Personality Disorder tend to see the world in polarized, over-simplified, all-or-nothing, or black-and-white terms. This may cause them to misinterpret the actions and motivations of others.

* This may lead to intense emotional reactions to situations.

•They apply their harsh either/or judgments to others and themselves and their perceptions of themselves and others may quickly vacillate back and forth between "all good" and "all bad."

•This tendency leads to an unstable sense of self so persons with this disorder tend to have a hard time being consistent.

•They can frequently change careers, relationships, life goals, or residences. Quite often these radical changes occur without any warning or preparation.

** It is important to remember that everyone can exhibit some of these personality traits from time to time. To meet the diagnostic requirement of a personality disorder, these traits must be inflexible; i.e., they can be regularly observed without regard to time, place, or circumstance.*

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Cluster C is called the anxious, fearful cluster. It includes the Avoidant, Dependent, and Obsessive-Compulsive Personality Disorders. These three personality disorders share a high level of anxiety.

Avoidant Personality Disorder is characterized by a pervasive pattern of social inhibition, feelings of inadequacy, and a hypersensitivity to negative evaluation. People with this disorder are intensely afraid that others will ridicule them, reject them, or criticize them. This leads them to avoid social situations and to avoid interactions with others. This further limits their ability to develop social skills. People with Avoidant Personality Disorders often have a very limited social world with a small circle of confidants. Their social life is otherwise rather limited. Their way of thinking about and interpreting the world revolves around the thought that they are not good enough and that others don't like them. They think of themselves as unappealing and socially inept. These types of thoughts create feelings of intense anxiety in social situations, along with a fear of being ridiculed, criticized, and rejected. The intensity of this fearful anxiety, and the discomfort it creates, compels them to avoid interpersonal situations. They might avoid parties or social events and may have difficulty giving presentations at work or speaking up in meetings. Others might perceive them as distant or shy. They likely come across as stiff and restricted. All this will likely interfere with their ability to make friends or to move ahead professionally.	The core feature of **Dependent Personality Disord**er is a strong need to be taken care of by other people. This needs to be taken care of, and the associated fear of losing the support of others, often leads people with Dependent Personality Disorder to behave in a "clingy" manner; to submit to the desires of other people. To avoid conflict, they may have great difficulty standing up for themselves. The intense fear of losing a relationship makes them vulnerable to manipulation and abuse. They find it difficult to express disagreement or make independent decisions and are challenged to begin a task when nobody is available to assist them. Being alone is extremely hard for them. When someone with Dependent Personality Disorder finds that a relationship they depend on has ended, they will immediately seek another source of support.	Persons with **Obsessive-Compulsive Personality Disorder** are preoccupied with rules, regulations, and orderliness. This preoccupation with perfectionism and control is at the expense of flexibility, openness, and efficiency. They are great makers of lists and schedules and are often devoted to work to such an extent that they often neglect social relationships. They have perfectionist tendencies, and are so driven in their work to "get it right" that they become unable to complete projects or specific tasks because they get lost in the details, and fail to see the "forest for the trees." Persons with Obsessive-Compulsive Personality Disorder tend to be rigid and inflexible in their approach to things. It simply isn't an option for them to do a "sub-standard" job just to get something done. Often, they are unable to delegate tasks for fear that another person will not "get it right." Sometimes people with this disorder adopt a miserly style with both themselves and others. Money is regarded as something that must be rigidly controlled to ward off future catastrophes. People with this disorder are often experienced as rigid, controlling, and stubborn.

** It is important to remember that everyone can exhibit some of these personality traits from time to time. To meet the diagnostic requirement of a personality disorder, these traits must be inflexible; i.e., they can be regularly observed without regard to time, place, or circumstance.*

SOMATIC SYMPTOMS AND RELATED DISORDERS

GENERAL CHARACTERISTICS - Characterized by physical complaints or conditions resulting in significant personal distress and impairment. Somatic symptom disorder, conversion disorder, and factitious disorder are the main disorders in this category.

SOMATIC SYMPTOM DISORDER - Characterized by physical complaints that are either extremely distressing or that prevent normal functioning. Individuals experience persistent symptoms that may or may not have a known medical cause. Individuals often have an exaggerated concern about health and illness. They may frequently meet with physicians and devote excessive amounts of time to researching symptoms and illnesses.

CONVERSION DISORDER - Characterized by paralysis, blindness, deafness, or other loss of sensory or motor control, with no discernible physical cause despite neurological examination. The symptom or symptoms results in significant distress or impaired functioning.

ILLNESS ANXIETY DISORDER - A disorder in which a person interprets normal physical sensations as symptoms of a disease. (Formally called hypochondriasis)

Developmental Disorders

Disorders of infancy, childhood, and adolescence include attention-deficit hyperactivity disorder, infantile autism, anorexia nervosa, and bulimia nervosa.

• Children with ***attention-deficit hyperactivity disorder (ADHD***) are unable to focus their attention, are easily distracted, and often act impulsively, quickly changing activities, which fails to complete tasks. Their inattention and inappropriate behaviors often lead to personal, social, and academic problems. ADHD is diagnosed 10 times more frequently in boys than in girls.

• ***Autism*** can be an extremely serious childhood disorder. Diagnosis is based on three primary symptoms that become evident early in life: lack of responsiveness to other people, impairment in verbal and nonverbal communication, and very limited activities and interests. Children with autism engage in repetitive behaviors. Autism has become more common.

Eating disorders have also become more common, especially in adolescent females in North America and Western Europe***. Anorexia nervosa*** is an eating disorder characterized by a weight of less than 85% of normal, abnormally restrictive food consumption, and an unrealistic body image. No matter how emaciated they become, people with anorexia still think they are fat and may continue to lose weight, which can result in death. ***Bulimia nervosa*** is an eating disorder characterized by a pattern of **eating binges** involving the intake of thousands of calories, followed by purging by either vomiting or using laxatives. Following the purge, people with bulimia typically feel guilty, self-critical, and depressed. Purging can cause sore throat, swollen glands, loss of tooth enamel, nutritional deficiencies, dehydration, and intestinal damage.

Please watch: **EATING AND BODY DYSMORPHIC DISORDERS**

I can identify the positive and negative consequences of diagnostic labels (e.g., the Rosenhan study).

The DSM-5 provides psychologists with an invaluable tool by enabling them to diagnose their clients. However, keep in mind that diagnostic labels are not always correct and have a tendency to outlast their usefulness. Experts caution that labeling individuals with certain disorders can predispose them to certain self-fulfilling prophesies and cause those around them to perceive them differently based on stereotypical beliefs

THE ROSENHAN STUDY: THE INFLUENCE OF LABELS

In 1978, ***David Rosenhan*** conducted a study in which he and several associates sought admission to several mental hospitals. All claimed that they had been hearing voices; that was the sole symptom they reported. All were admitted to the institutions as suffering from schizophrenia. At that time, they ceased reporting any unusual symptoms and behaved as they usually did. None of the researchers were exposed as imposters, and all ultimately left the institutions with the diagnosis of schizophrenia in remission. While in the institutions, the researchers' every behavior was interpreted as a sign of their disorder.

The Rosenhan study, while flawed and widely critiqued, raises several important issues:

1. Should people who were once diagnosed with a psychological problem carry that diagnosis for the rest of their lives?
2. To what extent are disorders the product of a particular environment, and to what extent do they inhere in the individual?
3. What is the level of institutional care available if the imposters could go undetected for a period of days and, in some cases, weeks?

For more information on this study please read: Study 29

We always run the risk of discrimination against those who are labeled. For example, Psychiatrist Thomas Szasz sees the classification of mental illness as a reason to justify political repression, an extreme position that causes us to examine assumptions about what's normal and what isn't.

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I can discuss the intersection between psychology and the legal system (e.g., confidentiality, insanity defense).

An important point is that the term is ***insane***, often used by laypeople to describe psychological disorders in general, is not a medical term. Rather, insanity is a legal term. The reason behind the legal definition of insanity is to differentiate between those people who can be held entirely responsible for their crimes (the sane) and those people who, because of a psychological disorder, cannot be held fully responsible for their actions. When defendants plead not guilty because of insanity (NGRI), they are asking that the court acquit them due to psychological factors. Legally, insanity is an inability to determine right from wrong. This may result in commitment because insane individuals are frequently a threat to themselves or the community.

Confidentiality is a respected part of psychology's code of ethics. Psychologists understand that for people to feel comfortable talking about private and revealing information, they need a safe place to talk about anything they'd like, without fear of that information leaving the room. They take a client's privacy very seriously. Laws are also in place to protect privacy. The Health Insurance Portability and Accountability Act (HIPAA) contains a privacy rule that creates national standards to protect individuals' medical records and personal health information, including information about psychotherapy and mental health.

The HIPAA Privacy Rule is designed to be a minimum level of protection. Some states have even stricter laws in place to protect your personal health information. You can contact your state's Board of Psychology to find out its laws and protections.

When can a psychologist share a client's private information without their consent?

In some specific situations, psychologists can share information without the client's written consent. Common exceptions are:

Psychologists may disclose private information without consent to protect the patient or the public from serious harm — if, for example, a client discusses plans to attempt suicide or harm another person.

Psychologists are required to report ongoing domestic violence, abuse, or neglect of children, the elderly, or people with disabilities. (However, if an adult discloses that he or she was abused as a child, the psychologist typically isn't bound to report that abuse, unless other children are continuing to be abused.)

Psychologists may release information if they receive a court order. That might happen if a person's mental health came into question during legal proceedings.

Will insurance companies see a client's records?
Psychologists will share certain information about your diagnosis and treatment with the health insurance company or government program (like Medicare or Medicaid) that is paying for your treatment so that the company or program can determine what care is covered. The health insurance company or program is also bound by HIPPA to keep that information confidential. However, if a client chooses to pay out of pocket for services, and they choose to not ask their insurance provider for reimbursement, their insurance may not be aware that they are seeing a psychologist.

Similarly, a client's psychologist may ask for their consent to share information or discuss their care, with other healthcare professionals to coordinate the client's care.

Will a client's employer know they saw a psychotherapist if they use my company's insurance?
Employers don't receive information about the health services an employee receives, even if he or she uses company insurance.
Some companies offer employee assistance programs (EAPs), which offer mental health services to employees. Usually, the company simply provides the service but doesn't receive information about how each employee uses it. However, if you have any questions about privacy and your organization's EAP, talk to a human resources representative for more details.

If a client is under 18. Will the psychologist tell their parents what they talk about?
Different states have different ages at which young people can seek mental health services without informing their parents. In most cases, a parent is involved when a minor receives psychotherapy services. Psychologists want young people to feel comfortable sharing their feelings and are careful to respect their privacy. Often, at the first psychotherapy visit, the child, parent, and psychologist will sit down together to discuss ground rules for privacy. That way both parents and children know exactly what types of information the psychologist might share with parents, and what he or she will keep private. For example, it is common for parents to agree to be informed only if their minor child is engaged in risky activities.

If a client is older than 18, but still uses their parents' insurance.
Many college counseling centers don't require insurance. In those cases, students should be able to receive mental health services without their parents' knowledge, if they wish. When a person receives services using medical insurance, the insurance company sends a statement called an Explanation of Benefits (EOB) that explains which services were used and paid for. If a client uses their parents' insurance for psychotherapy services, their parents may receive an EOB that outlines the services they used. However, they will not be able to access the client's records or find out what they discussed during their sessions with a psychologist.

Treatment of Abnormal Behavior

This section of the course provides students with an understanding of empirically based treatments of psychological disorders. The topic emphasizes descriptions of treatment modalities based on various orientations in psychology.

Myers Modules 70-73 pages 707-752 **5 to 7% of AP Course**

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Objectives

- ☐ I can describe the central characteristics of psychotherapeutic intervention.
- ☐ I can describe major treatment orientations used in therapy (e.g., behavioral, cognitive, humanistic) and how those orientations influence therapeutic planning.
- ☐ I can compare and contrast different treatment formats (e.g., individual, group).
- ☐ I can summarize effectiveness of specific treatments used to address specific problems.
- ☐ I can discuss how cultural and ethnic context influence choice and success of treatment (e.g., factors that lead to premature termination of treatment).
- ☐ I can describe prevention strategies that build resilience and promote competence.
- ☐ I can identify major figures in psychological treatment (e.g., Aaron Beck, Albert Ellis, Sigmund Freud, Mary Cover Jones, Carl Rogers, B. F. Skinner, Joseph Wolpe).

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Define and Apply the following the following Vocab and/or concepts

psychotherapy
biomedical therapy
eclectic approach
psychoanalysis
resistance
interpretation
transference
psychodynamic therapy
insight therapies
client-centered therapy
active listening
unconditional positive regard
behavior therapy
counterconditioning

exposure therapies
systematic desensitization
virtual reality exposure therapy
aversive conditioning
token economy
cognitive therapy
rational-emotive behavior therapy (REBT)
cognitive-behavioral therapy (CBT)
group therapy
family therapy
regression toward the mean

meta-analysis
evidence-based practice
therapeutic alliance
resilience
psychopharmacology
antipsychotic drugs
antianxiety drugs
antidepressant drugs
electroconvulsive therapy (ECT)

repetitive transcranial magnetic stimulation (rTMS)

psychosurgery
lobotomy

Key People:

Sigmund Freud
Carl Rodgers
Fritz (Friedrich, Frederick) Perls
Mary Cover Jones
Joseph Wolpe

B.F. Skinner
Aaron Beck
Albert Ellis
Dorothea Dix

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HISTORY

People have always suffered from psychological problems, but the attitudes toward and treatment of these people have changed dramatically. In many early societies, the mentally ill were seen as possessed by evil spirits. Archaeologists have unearthed human skulls with regularly shaped holes that seem to have been purposefully made. Researchers theorize that the making of the holes, a process called trephining was an early form of treatment that was supposed to let the harmful spirits escape.

Although both Hippocrates, who lived in Ancient Greece circa 500 B.C., and Galen, who lived in Rome circa 200 A.D., posited that psychological illnesses were influenced by biological factors and could therefore be treated, Europeans during the Middle Ages returned to the belief that demons and spirits were the cause. Persecution, rather than treatment, usually resulted.

The Enlightenment led to a more sympathetic view. Leading the call to treat victims of mental illness more humanely at the turn of the nineteenth century were ***Philippe Pinel*** in France and ***Dorothea Dix*** in the United States. These reformers railed against a system that treated the mentally ill as if they were criminals, even caging and beating them. These two helped bring about the development of separate and kinder institutions for people with severe psychological disorders.

Several recent trends in the field of mental health in the United States must also be mentioned. Following the development of drugs in the 1950s that could moderate the effects of severe disorders, many people were released from mental institutions. This phenomenon, called ***deinstitutionalization***, was intended to save money as well as benefit the former inpatients. Unfortunately, deinstitutionalization was far less successful than initially hoped. Once released, many of the former patients were unable to care for themselves. Their psychological needs were supposed to be met by local clinics on an outpatient basis. Many of the people released, however, were schizophrenics who ended up homeless and delusional, unable to secure the psychological or financial care they needed.

Recently, in the United States, a growing emphasis has been placed on preventative efforts. If psychological problems can be treated proactively, or before they become severe, the suffering of the client as well as the cost of providing care can be reduced. Preventative efforts can be described as primary, secondary, or tertiary. Primary prevention efforts attempt to reduce the incidence of societal problems, such as joblessness or homelessness, that can give rise to mental health issues. Secondary prevention involves working with people at-risk for developing specific problems. One example would be counseling people who live in an area that has experienced trauma such as a natural disaster or terrorist attack. Finally, tertiary prevention efforts aim to keep people's mental health issues from becoming more severe, for instance, working with earthquake survivors who are already suffering from an anxiety disorder in the hopes of preventing the disorder from becoming more severe.

I can describe the central characteristics of psychotherapeutic intervention.

Psychotherapy, also called talk therapy, therapy, or counseling -- is a process focused on helping you heal and learn more constructive ways to deal with the problems or issues within a person's life. It can also be a supportive process when going through a difficult period or under increased stress, such as starting a new career or going through a divorce.

Generally, psychotherapy is recommended whenever a person is grappling with a life, relationship, or work issue or a specific mental health concern, and these issues are causing the individual a great deal of pain or upset for longer than a few days. There are exceptions to this general rule, but for the most part, there is no harm in going into therapy even if you're not entirely certain you would benefit from it.

Millions of people visit a psychotherapist every year, and most research shows that people who do so benefit from the interaction. Most therapists will also be honest with their patients if they believe they won't benefit or, in their opinion, don't need psychotherapy.

Modern psychotherapy differs significantly from the Hollywood version. Typically, most people see their therapist once a week for 50 minutes. For medication-only appointments, sessions will be with a psychiatric nurse or psychiatrist and tend to last only 15 to 20 minutes. These medication appointments tend to be scheduled once per month or once every six weeks.

Most psychotherapy tends to focus on problem-solving and is goal-oriented. That means at the onset of treatment, patients and their therapist decide upon which specific changes they would like to make in their life. These goals will often be broken down into smaller attainable objectives and put into a formal treatment plan. Most psychotherapists today work on and focus on helping the patient to achieve those goals. This is done simply through talking and discussing techniques that the therapist can suggest that may help you better navigate those difficult areas within your life. Often psychotherapy will help teach people about their disorder, too, and suggest additional coping mechanisms that the person may find more effective.

Most psychotherapy today is short-term and lasts less than a year. Most common mental disorders can often be successfully treated in this time frame, often with a combination of psychotherapy and medications.

Psychotherapy is most successful when the individual enters therapy on their own and has a strong desire to change. If the patient doesn't want to change, change will be slow in coming. Change means altering those aspects of their life that aren't working for them any longer, or are contributing to their problems or ongoing issues. It is also best for the patient to keep an open mind while in psychotherapy, and be willing to try out new things that ordinarily they may not do. Psychotherapy is often about challenging one's existing set of beliefs and often, one's very self. It is most successful when a person is able and willing to try to do this in a safe and supportive environment.

I can describe major treatment orientations used in therapy (e.g., behavioral, cognitive, humanistic) and how those orientations influence therapeutic planning.

I can summarize effectiveness of specific treatments used to address specific problems.

No one approach for treating people with psychopathologies is ideal. Multiple approaches can often be more helpful than using one specific approach. For example, a depressed patient might benefit from cognitive therapy, social skills training, and anti-depressant drugs. Research is being conducted to determine the most effective (efficacious) treatments for clients with different disorders. One method for evaluating outcome research is ***meta-analysis***. A meta-analysis, the systematic statistical method for synthesizing the results of numerous research studies dealing with the same variables, indicates that clients who receive psychotherapy are better off than most of those who receive no treatment.

TYPES OF THERAPY - Clearly, people's beliefs about effective treatment are grounded in their ideas about the cause of the problem. Psychoanalytic, humanistic, behavioral, and cognitive psychologists share a belief in the power of psychotherapy to treat mental disorders. On the other hand, psychologists who subscribe to a ***biomedical model*** assert that such problems require somatic treatments such as drugs. Psychotherapies, except for behavioral treatments, largely consist of talking to a psychologist. Behaviorists believe that psychological problems result from the contingencies of reinforcement to which a person has been exposed. Therefore, behavioral therapy focuses on changing these contingencies.

APPROACHES TO THERAPY

INSIGHT THERAPIES - Insight therapies are designed to help clients understand the causes of their problems. This understanding or insight will then help clients gain greater control over their thoughts, feelings, and behaviors. The leading insight approaches include psychoanalytic/ psychodynamic, cognitive, and humanistic therapies. All three are based upon a personal relationship between the client and therapist. A variety of group therapies based on insight are also available for families and married couples.

BEHAVIOR THERAPY - Behavior therapy focuses on the problem behavior itself, rather than on insights into the behavior's underlying causes. Behavior therapy is based on the principles of classical conditioning, operant conditioning, and observational learning.

BIOMEDICAL THERAPY - Biomedical therapies are based on the premise that the symptoms of many psychological disorders involve biological factors, such as chemical imbalances, disturbed nervous system functions, and abnormal brain chemistry. Biomedical therapy uses drugs and electroconvulsive therapy to treat psychological disorders.

ECLECTIC APPROACH- An approach to psychotherapy that, depending on the client's problems, uses techniques from various forms of therapy.

Please read:
Study 33

Models of Treatment
There are six recognized models of treatment:

psychodynamic: believes the key to successful treatment involves having the patient gain insight into their unconscious motives, emotions or conflicts
cognitive: attempts to restructure the patient's incorrect thought processes and unrealistic expectations into more realistic thoughts
humanistic: believes in the inherent goodness of people and strives to make them more fully-functioning
behavioral: advocates relearning as the preferred method of correcting past maladaptive behaviors
biomedical: advocates the treatment of psychological disorders through chemical or surgical processes
group therapy: allows others afflicted with similar disorders to share real-world solutions and coping mechanisms

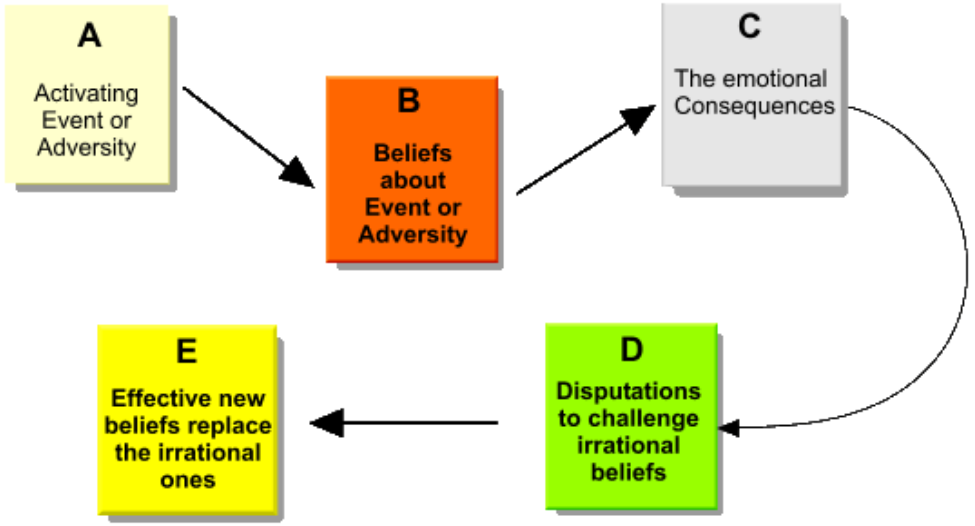
Psychoanalysis- Sigmund Freud believed that abnormal behavior was the result of unconscious conflicts from early childhood trauma experienced during the psychosexual stages of development. He thought that the way to relieve the anxieties is to resolve the unconscious conflicts, which are covered by layers of experience. Psychoanalysis involves going back to discover the roots of problems, then changing one's misunderstandings and emotions after identifying the problem. His treatment plan to bring the conflict into the conscious mind, enabling the client to gain insight and achieve personality change, includes the techniques of free association and ***dream interpretation.***

In traditional psychoanalysis, the client participates in several sessions every week for 2 or 3 years, during which the therapist sits behind the patient and asks him/her to say whatever comes to mind, called ***free association***. If clients do not censor what they say, key thoughts will make unconscious conflicts accessible. Since threatening experiences and feelings can be revealed when controls of the ego and superego are relaxed during sleep, the analyst may ask the client to recall his or her dreams. The recalled dream—the surface meaning—is called ***the manifest content***. The therapist works with the client to find the hidden, underlying meaning (the ***latent content***), by analyzing symbols within the dream. ***Hypnosis*** and ***Freudian slips***, Freud's "faulty actions," for which his editor/translator adopted the term parapraxes, may also reveal hidden conflicts. ***Resistance***—blocking of anxiety-provoking feelings and experiences, evidenced by behavior such as talking about trivial issues or coming late for sessions—is a sign that the client has reached an important issue that needs to be discovered.
Although the analyst's behavior is neutral, the client may respond to the analyst as though he or she is a significant person in the client's emotional life. Known as ***transference***, this behavior can allow the client to replay previous experiences and reactions, enabling him or her to gain insight into current feelings and behaviors. ***Catharsis***, the Release of emotional tension after remembering or reliving an emotionally charged experience from the past, may Ultimately result in the relief of anxiety. Traditional psychoanalysis requires too much time and is too expensive for the vast majority of people seeking help.

Psychodynamic and Interpersonal Psychotherapy- Psychoanalytic theory influences modern ***psychodynamic psychotherapy***, which is typically shorter in duration, less frequent, and involves the client sitting up and talking to the therapist. The more active therapist is likely to point out and interpret relevant associations and help the client uncover unresolved conflict more directly to gain insight into the problem and work through feelings. Although psychodynamic therapists think that anxieties are rooted in past experiences, they do not necessarily assume the problems arose in infancy and early childhood. Even shorter interpersonal psychotherapy aims to enable people to gain insight into the causes of their problems, but it focuses on current relations to relieve present symptoms.

Cognitive-Behavioral Approaches- Cognitive therapists, sometimes called cognitive-behavioral therapists, think that abnormal behavior is the result of faulty thought patterns. Many psychologists consider cognitive therapy to be insight therapy. Cognitive-behavior therapy helps clients change both the way they think and the way they behave. Through **cognitive restructuring**, or turning faulty, disordered thoughts into more realistic thoughts, the client may change abnormal behavior.

Albert Ellis developed ***Rational Emotive Therapy*** (RET), which is also called **rational emotive behavior therapy (REBT),** based on the idea that anxiety, guilt, depression, and other psychological problems result from self-defeating thoughts. The therapist has the client confront irrational thoughts by discussing his or her **a**ctions, his or her **b**eliefs about those actions, and finally the **c**onsequences of those beliefs. The actions, beliefs, and consequences he called the ABCs of treatment. Ellis believed that much of this thinking involves the tyranny of the "shoulds," and "musts" what we believe we must do, rather than what is realistic or necessary.



ABC Process of Rational Emotive Behavior Therapy (REBT),

A Identifying activating events
RET therapy begins by identifying an "activating event" that affects a client's mental processes and behavior. For example, you are nervous during a job interview and are not hired.

B Identifying belief systems
The second step in RET therapy is to identify the client's irrational beliefs and negative self-talk. For example, you interpret the poor job interview by telling yourself, "I can't stay calm during a job interview. I'll never get a job."

C Examining emotional consequences
RET therapists argue that irrational beliefs lead to self-defeating behaviors, anxiety disorders, and depression. For example, a disappointing job interview leads to a feeling of depression that reinforces irrational beliefs.

D Disputing erroneous beliefs
In the final step of RET therapy, the therapist vigorously disputes the client's faulty logic and self-defeating "should," "must," "can't," and "never" beliefs.

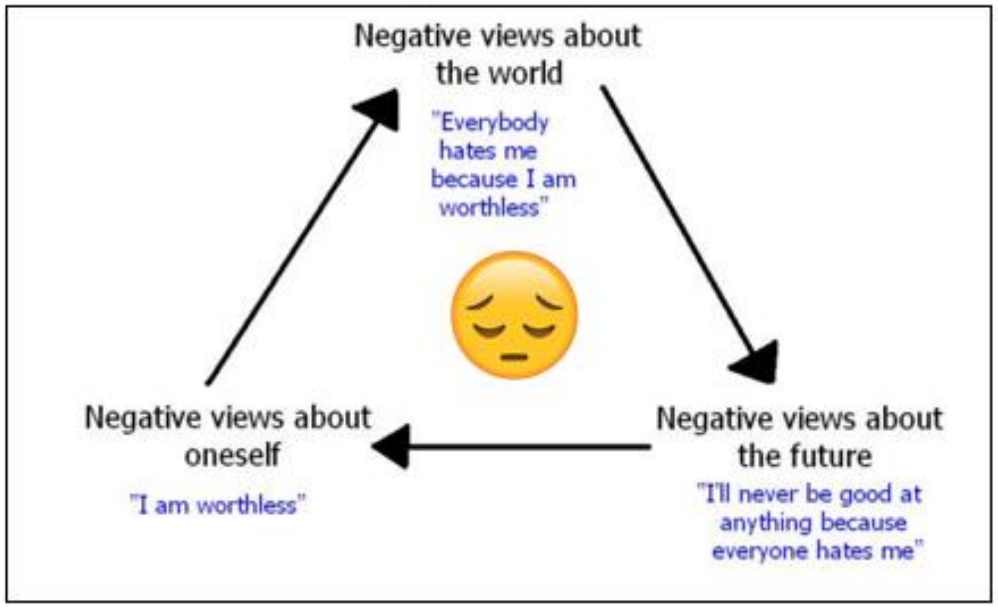
For example, a therapist would challenge the statement, "I will never get a job because I get too nervous during a job interview." Changing irrational beliefs is not easy. Replacing negative self-talk with rational beliefs requires time and patience. For example, the therapist would suggest that the client make the following statement instead: "I can stay calm and confident during an interview and I will find the perfect job for me."

Cognitive Triad Therapy

Aaron Beck also developed cognitive therapy to alleviate faulty and negative thoughts. His ***cognitive triad*** looks at what a person thinks about himself or herself, his or her world, and his or he future. Depressed individuals tend to have negative perceptions in all three areas. As noted by Martin Seligman, depressed individuals tend to think they caused the negative events, the negative events will affect everything they do, and the negative events will last forever. Such thoughts and beliefs lead to low self-esteem, depression, and anxiety.

The goal of therapy is to help them change these irrationally negative beliefs into more positive and realistic views so that failures are attributed to things outside their control and successes are seen as personal accomplishments. Beck suggests specific tactics, including evaluating the evidence the The client has for and against automatic thoughts, reattributing the blame to situational factors rath then the client's incompetence, and discussing alternative solutions to the problem. For example, instead of blaming yourself for being stupid when the entire class does poorly on a math exam, you might substitute the thought that you didn't have an adequate opportunity to study, and the The test may not have been valid.

Beck's model of depression
Cognitive Triad



Cognitive-behavioral therapy (CBT) is a form of psychotherapy that treats problems and boosts happiness by modifying dysfunctional emotions, behaviors, and thoughts. Unlike traditional Freudian psychoanalysis, which probes childhood wounds to get at the root causes of conflict, CBT focuses on solutions, encouraging patients to challenge distorted cognitions and change destructive patterns of behavior.

Cognitive therapies have been demonstrated to be effective in treating depression, eating disorders, chronic pain, marital discord, and anxiety disorders (generalized anxiety disorder, panic disorder, agoraphobia, and social phobia). Cognitive therapy has been criticized for relying too heavily on rationality while ignoring the client's unconscious drives.

Test Tip

Albert Ellis and Aaron Beck have both made significant contributions to cognitive therapy. AP Psychology test writers have thus far placed a greater emphasis upon Ellis's rational emotive therapy (RET). Be sure you know that rational emotive therapy can involve a confrontational atmosphere between the therapist and the client.

Test Tip

Humanistic Therapies- Humanistic therapies include client-centered or person-centered therapies and Gestalt therapy. Humanists think that problems arise because the client's inherent goodness and potential to grow emotionally have been stifled by external psychosocial constraints. The goal of ***client-centered therapy*** is to provide an atmosphere of acceptance (***unconditional positive regard***), understanding (empathy), and sharing that permits the client's inner strength and qualities to surface so that personal growth can occur and problems can be eliminated, ultimately resulting in self-actualization.

According to humanist ***Carl Rogers***, the greater the difference between the ideal self and the real self, the greater the problems of the client. His emphasis on developing a more positive self-concept through ***unconditional positive regard***, ***active listening***, and showing both sensitivity and genuineness is a central focus of nondirective, Rogerian psychotherapy. Nondirective therapy encourages the client to take the lead in determining the direction of therapy. Rogers's technique of active listening involves echoing, restating, and seeking clarification of what the client says and does, and acknowledging feelings.

The following exchange illustrates the nondirective approach utilized by client-centered therapists:

Client: I feel rejected. I'm too shy and I'll never be popular.

Therapist: I guess you feel that way a lot, don't you? That people dismiss you. It's hard to have feelings like that.

Note: that a client-centered therapist does not challenge the client's beliefs. Instead, the therapist actively listened and then paraphrased and clarified what the client said.

Influenced by Gestalt psychology, which emphasized that people organize their view of the world to make meaning, psychoanalyst ***Fritz Perls*** said that people create their reality and continue to grow psychologically only as long as they perceive, stay aware of, and act on their true feelings. He developed Gestalt therapy. The therapist's goal is to push clients to decide whether they will allow past conflicts to control their future or whether they will choose right now to take control of their destinies. In contrast to client-centered therapy, Gestalt therapists are directive in questioning and challenging clients to help them become aware of their feelings and problems and to discard feelings and values that are not their own. Similar to psychoanalysts, Gestalt therapists use dream interpretation to help the client gain a better understanding of the whole self. Through role-playing, the therapist gets the client to express his or her true feelings. Like other humanistic therapies, the emphasis is on present behavior, feelings, and thoughts to get the client aware of how these factors interact to affect his or her whole being.

Humanistic therapy emphasizes the positive and constructive role each individual can play in controlling and determining their mental health. As a result, humanistic psychology has helped remove some of the stigma attached to therapy. Client-centered therapy is unstructured and very subjective. As a result, it is difficult to objectively measure such basic humanistic concepts as self-actualization and self-awareness.

Behavioral Approaches- ***B. F. Skinner*** and other behaviorists discount the insight therapies. To Skinner, abnormal behavior is a result of maladaptive behavior learned through faulty rewards and punishment. The goal of behavior therapy is to extinguish unwanted behavior and replace it with more adaptive behavior. Therapies are based on the learning principles of classical conditioning, operant conditioning, and observational or social learning theory.

Classical Conditioning Therapies- After Watson conditioned Baby Albert to fear a rat, he planned to remove the fear but Albert was taken away. Soon thereafter, ***Mary Cover Jones*** worked with a young child who feared white rabbits, rats, and similar stimuli. Over several months, she gradually introduced a rabbit closer and closer to the child while he ate and played. Jones used ***counterconditioning techniques*** and the boy's fear was gradually eliminated. ***Joseph Wolpe*** dubbed her "the mother of behavior therapy."

Classical conditioning therapies involving reconditioning include the counterconditioning techniques of systematic desensitization, flooding, and aversive conditioning.

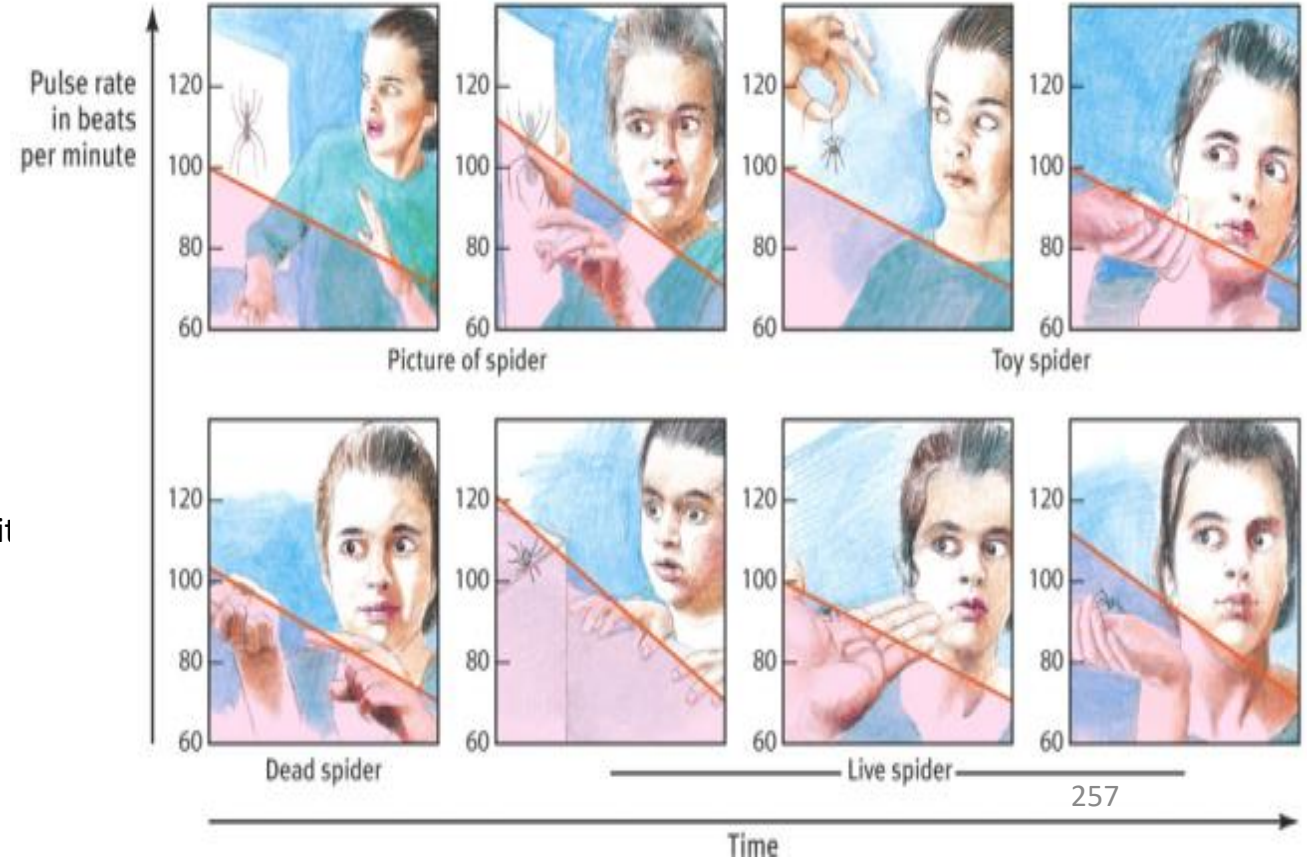
Originally called *reciprocal inhibition*, ***systematic desensitization*** is a behavior therapy founded on the idea that an anxiety response is inhibited by an incompatible relaxation response. Joseph Wolpe explained systematic desensitization as reconditioning so that the crucial conditioned stimulus elicits the new conditioned response.

The procedure has three steps.

First, the client is taught progressive relaxation.

Next, the therapist and client create an **anxiety hierarchy** of all associated fears from the least-feared to the most-feared stimulus (see diagram).

Third, the therapist has the student imagine each of the fearful associations beginning with the least-feared stimulus, the mere thought of a spider and pairs it process is repeated, finally ascending to the most fear-provoking stimulus of actually holding a spider. When the client can hold the spider and be completely relaxed, the relaxation response is effective in inhibiting the fear response. Systematic desensitization is typically accomplished within 10 sessions.



Please Read: **Study 34**

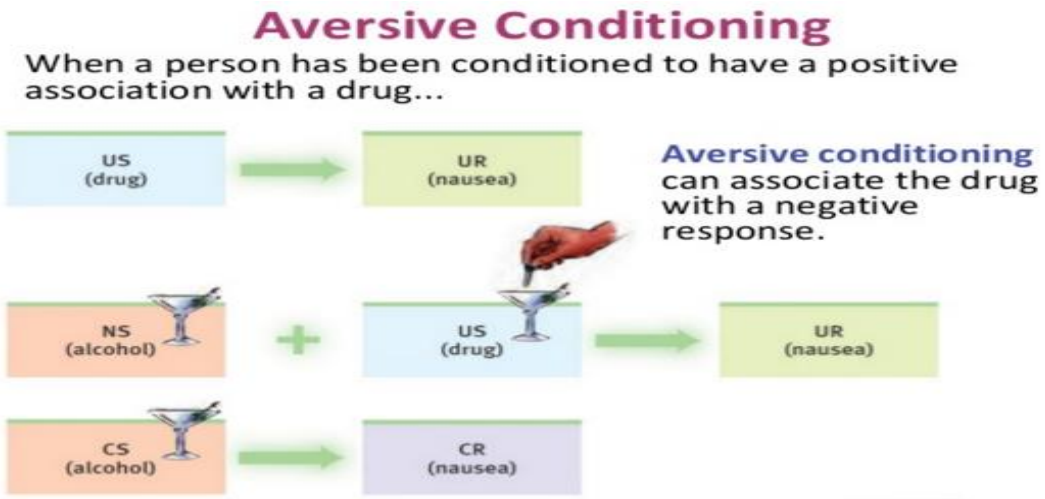
Test Tip

Systematic desensitization has generated a significant number of multiple-choice questions. It is very important to remember that systematic desensitization relies upon classical conditioning to treat specific phobias.

Test Tip

Flooding is an ***exposure technique***, another classical conditioning treatment for phobias and other anxiety disorders, that extinguishes the conditioned response. As a result of the client directly confronting the anxiety-provoking stimulus, extinction is achieved; the feared stimulus (the conditioned stimulus) is repeatedly presented without the reason for being afraid (the unconditioned stimulus). For example, if someone afraid of dogs is repeatedly exposed to friendly dogs that do not bite, the fear associated with the dogs will eventually be extinguished.

Yet another form of behavior therapy based on the principles of classical conditioning, ***aversive conditioning***, trains the client to associate physical or psychological discomfort with behaviors, thoughts, or situations he or she wants to stop or avoid. One example of aversive conditioning uses a drug called Antabuse (US) to discourage the use of alcohol. By itself, the drug has no chemical effect, but when paired with alcohol (CS), the combination causes extreme nausea (CR). Similar to taste aversions, after very few pairings of Antabuse and alcohol, the client learns to avoid alcohol. Without an occasional pairing of the Antabuse with the alcohol again, this new response can easily be extinguished.



Operant Conditioning Therapies

Operant conditioning therapies include contingency management techniques of behavior modification and token economies designed to change behavior by modifying its consequences. In both, rewards are used to reinforce target behaviors.

In ***behavior modification***, the client selects a goal and, with each step toward it, receives a small reward until the intended goal is finally achieved. Weight Watchers and other weight-reducing programs use this method to keep clients motivated.

In ***token economies***, positive behaviors are rewarded with ***secondary reinforcers*** (tokens, points, etc.), which can eventually be exchanged for extrinsic rewards, such as food. Token economies are often used in institutions to encourage socially acceptable behaviors and discourage socially unacceptable ones.

Behavior Therapy Techniques

Technique	Description	Example
Positive reinforcement	Complimenting and providing rewards or privileges in response to desired behavior.	Child completes an assignment and is permitted to play on the computer.
Time-out	Removing access to desired activity because of unwanted behavior.	Child hits sibling and, as a result, must sit for 5 minutes in the corner of the room.
Response cost	Withdrawing rewards or privileges because of unwanted behavior.	Child loses free-time privileges for not completing homework.
Token - economy	Combining reward and consequence. Child earns rewards and privileges when performing desired behaviors. She loses rewards and privileges as a result of unwanted behavior.	Child earns stars or points for completing assignments and loses stars for getting out of seat. Child cashes in the sum of her stars at the end of the week for a prize.

Other Behavior Therapies

Social skills training is a behavior therapy, based on operant conditioning and Albert Bandura's social learning theory, to improve interpersonal skills by using modeling, behavioral rehearsal, and shaping. With ***modeling***, the client is encouraged to observe socially skilled people to learn appropriate behaviors. In behavioral rehearsal, the client practices the appropriate social behaviors through role-playing in structured situations. The therapist helps the client by providing positive reinforcement and corrective feedback. ***Shaping*** involves the reinforcement of more and more complex social situations. Through social skills training, people with social phobias learn to make friends or date, and former mental patients learn to deal normally with people outside of the hospital.

Biofeedback training is a widely used behavioral therapy that involves giving the individual immediate information about the degree to which he or she can change anxiety-related responses such as heart rate, muscle tension, and skin temperature to facilitate improved control of the physiological process and, therefore, lessen physiological arousal.

Evaluation

Behavior therapies have been found effective for treating anxiety disorders (generalized anxiety disorder, panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder), alcohol and drug addictions, bed-wetting, sexual dysfunctions, and autism.

Psychoanalysts discount the quick cure offered by behaviorists. Since behaviorists are unconcerned with the cause of anxiety, analysts believe that it will resurface in a new form. Until the unconscious conflict is made conscious, the behaviorist is only "curing" the symptom of the problem; so through symptom substitution, a new problem will occur. The so-called cured smoker suddenly begins another compulsive habit, like eating or drinking. Critics also point out that the newly acquired behaviors may disappear if they are not consistently reinforced. Finally, critics question the ethics of using rewards and punishments to control a client's behavior.

Please watch: **GETTING HELP - PSYCHOTHERAPY**

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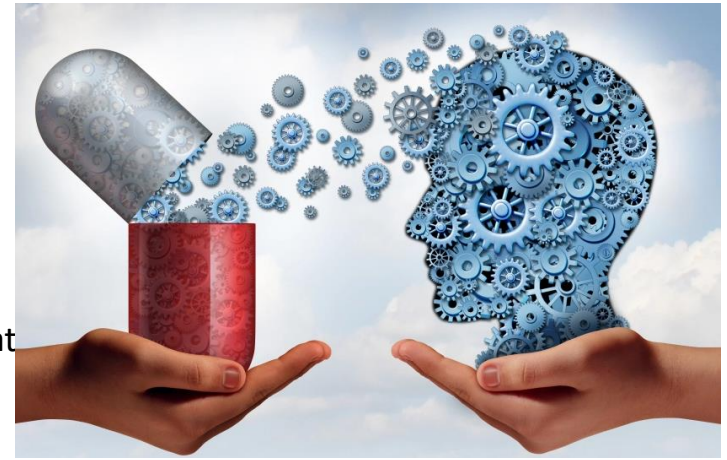
BIOMEDICAL THERAPIES - Biomedical therapies use drugs and electroconvulsive therapy to treat psychological disorders. In most cases, a psychiatrist must prescribe biomedical therapies.

Psychopharmacology is the study of how drugs affect mental processes and behavior.

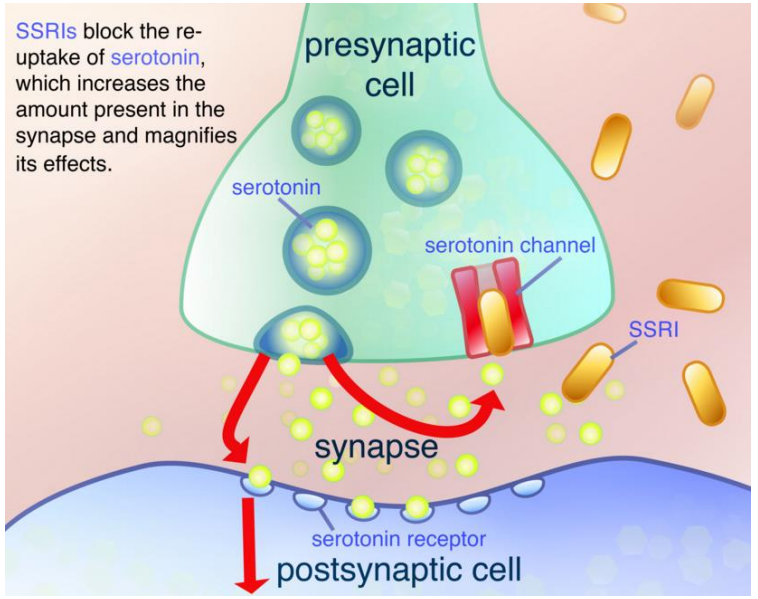


Antianxiety drugs are designed to reduce anxiety and produce relaxation by lowering sympathetic activity of the brain. Valium and Xanax are the best-known antianxiety drugs.

Stimulants are psychoactive drugs, such as Ritalin (methylphenidate) and Dexedrine (dextroamphetamine), That activates motivational centers and reduces activity in inhibitory centers of the central nervous system by Increasing the activity of serotonin, dopamine, and norepinephrine neurotransmitter systems. They are used to treat people with narcolepsy and people with attention-deficit hyperactivity disorder.

Antipsychotic drugs are designed to diminish or eliminate hallucinations, delusions, and other symptoms of schizophrenia. Also known as neuroleptics or major tranquilizers. Antipsychotic drugs work by decreasing activity at the dopamine synapses in the brain. Long-term use of antipsychotic drugs can produce a movement disorder called tardive dyskinesia. The symptoms of tardive dyskinesia include involuntary movements of the tongue, facial muscles, and limbs.

Mood-stabilizing drugs (anti-depressants)
Designed to treat the combination of manic episodes and depression characteristic of bipolar disorders. Lithium is the best-known drug for treating bipolar disorders. Antidepressant drugs are designed to treat depression by inhibiting the reuptake of the neurotransmitter serotonin. Prozac is the best-known and most widely used selective serotonin reuptake inhibitor (SSRI).



Test Tip

AP Psychology textbooks often contain detailed charts listing psychological disorders and the drugs used to treat them. Do not waste valuable study time memorizing these lists. You should focus on remembering that Lithium is used to treat bipolar disorders and Prozac is a selective serotonin reuptake inhibitor (SSRI) used to treat depression.

Test Tip

Other Biological Treatments

Some patients do not respond well to antidepressant drugs or psychotherapy. ***Electroconvulsive shock treatment*** (ECT) is used as a last resort to treat severely depressed patients. ECT is administered humanely, with the patient under anesthetic, and given a muscle relaxant to prevent injury from convulsions. Then the patient receives a momentary electric shock. Typically, the procedure is repeated about six times over 2 weeks. Just how the procedure works is still unknown, but many depressed, suicidal patients are restored to healthy functioning. The patient usually experiences some (often temporary) memory loss immediately following the procedure, but no apparent brain damage.

A promising new painless treatment for severe depression is ***repetitive transcranial magnetic stimulation (rTMS)*** in which repeated pulses surge through a magnetic coil positioned above the right eyebrow of the patient. The treatment is administered daily for a few weeks. The treatment may work by stimulating the depressed patient's left frontal lobe.

Psychosurgery, or the removal of brain tissue, can also be used to treat certain organic problems that lead to abnormal behavior. Psychosurgery is a treatment of last resort because its effects are irreversible. From about 1935 to 1955, the ***prefrontal lobotomy***, which cut the main neural tracts connecting lower brain regions to the frontal lobes, was performed on thousands of schizophrenic patients, especially violent ones, to reduce the intensity of their emotional responses. Unfortunately, following the lobotomies, many patients were left as emotional zombies, with extensive brain damage. Today psychosurgery is very limited. One successful procedure used for severe epilepsy is the corpus callosum transection, or split-brain surgery, in which only the corpus callosum between the left and right cerebral hemispheres is cut.

Please watch: BIOMEDICAL TREATMENTS

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I can compare and contrast different treatment formats (e.g., individual, group).

Modes of Therapy

Group Therapy- The same types of therapies used in individual counseling can be used with a group of patients. Typically, group therapy is more helpful than individual counseling in enabling the client to discover that others have similar problems. Individuals receive information about their problems from either the therapist or other group members. Financially, group therapy is also cheaper for clients who might otherwise not be able to afford individual counseling. Less verbal clients and those more resistant in individual settings may find it easier to open up about their problems in a group setting. Clients get helpful feedback from peers that may allow them to gain better insight into their own particular situations.

Couples and Family Therapy- Trained professionals can direct spouses and family members to openly discuss their individual perspectives on the same issue. In the neutral setting of the therapist's office, individuals can come to better understand others' feelings and beliefs and how their behavior affects others. The therapy can serve as a training ground to practice better communication skills and bring about improved relationships.

Self-Help Groups- Self-help groups are yet another way that individuals who share the same problem may get assistance. One of the best-known examples is Alcoholics Anonymous. Recovering alcoholics get peer support and have an outlet to share their individual experiences. It should be noted, however, that trained psychotherapists do not conduct these sessions. The responsibility for leading the group is up to the group members themselves. Meetings can be attended anywhere in the United States. New members can receive a sponsor, someone who has been in recovery for a longer period of time, to call in emergency situations. A spiritual aspect underlies Alcohol Anonymous's Twelve-Step Program as well.

Community and Preventive Approaches- With deinstitutionalization came to the problem of how to help patients released from mental hospitals and an ever-growing number of other people in need of aid in local communities. The vast increase in the homeless population, many of whom have symptoms of schizophrenia, has posed a problem that has not been solved. Yet these problems have led to the rise of a relatively new subfield of psychology, community psychology. Community psychologists aim to promote psychosocial change to prevent psychological disorders as well as to treat people with psychopathologies in their local communities.

As part of the community mental health movement of the 1960s, local clinics cropped up. With continued funding problems, these local clinics try to provide both treatment and preventive services. One of their major goals is to treat people with psychological problems to prevent them from getting worse and help them recover. They address unemployment, poverty, overcrowding, and other stressful social problems that can affect mental health. Other initiatives include prenatal and follow-up well-baby care, dissemination of information on sexually transmitted diseases, suicide prevention programs, child abuse prevention, and training of paraprofessionals to help community members cope with emergency situations. They hold free screenings for depression and anxiety, sponsor suicide hotlines, and provide outreach programs for at-risk children and teens.

I can discuss how cultural and ethnic context influence choice and success of treatment (e.g., factors that lead to premature termination of treatment).

Premature termination is a significant yet often neglected problem in psychotherapy with significant consequences for clients and therapists alike. According to some estimates, as many as 20% of adult clients terminate psychotherapy prematurely. Even experienced practitioners using the best evidence-based techniques cannot successfully promote positive, long-term change in clients who do not complete the full course of treatment.

The reasons clients leave early are sometimes valid and sometimes a smokescreen for resistance. But since they're leaving early, without an opportunity to debrief, we can't always fully explore why. Here are some of the top reasons why clients end therapy before the work is complete:

Money: Probably the #1 cause of premature termination, lack of funding frequently ends therapy. Therapy is a relationship, but one that requires payment for therapists' time, training, overhead, and liability. A layoff, a tightened budget, or a limit on insurance reimbursement can draw therapy to a sudden close.

Subconscious Resistance: Therapy can provide wonderful possibilities, benefits, and outcomes, but occasionally people still resist the experience. This may be because of fear of success, failure, feeling overwhelmed by truth, fear of the unknown, or simply overwhelming emotions.

Impasse: Most clients feel stuck occasionally in therapy. If you've tried working together through this stuckness for several sessions and still can't move, it may be time to leave. It could be due to a psychological barrier or there could be a mismatch. For example, a client seeks treatment for sexual dysfunction and later reveals a substance abuse problem beyond the therapist's training. An ethical therapist would refer the case to someone with sufficient experience, effectively drawing their relationship to a close.

Grudge: Given the emotional nature of many therapy issues, it's not surprising that conflicts between therapist and client sometimes occur. If not adequately addressed and resolved in the therapy, some clients bail. Since therapy is where many people go to figure out relationships, this premature ending is both tragic and ironic.

Quick Fix: After three sessions, Bob says his major depression, PTSD, trichotillomania and Munchausen syndrome have all been resolved so he's stopping treatment. The therapist may voice her caution and advise Bob to stick around a while, but Bob calls the shots and he's leaving. We call this a flight into health.

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I can describe prevention strategies that build resilience and promote competence.

The challenges in our personal, professional, financial, and emotional world are on the rise, more so in developing countries and people will be longing for mental wellness for achieving complete health in their life. ***Resilience*** stands for one's capacity to recover from extremes of trauma and stress. Resilience in a person reflects a dynamic union of factors that encourages positive adaptation despite exposure to adverse life experiences.

“Resilience” is interestingly a term taken from the physics of materials, i.e. the property of a material that enables it to resume its original shape or position after being bent, stretched, or compressed viz. elasticity. In psychiatry, resilience stands for one's capacity to recover from extremes of trauma and stress. It is attributed to some people who manage to endure and recover fully, despite suffering significant traumatic conditions of extreme deprivation, serious threat, and major stress. Resilience in a person reflects a dynamic union of factors that encourages positive adaptation despite exposure to adverse life experiences. Resilience is associated with mental health and is considered to be essential as a component of successful psychosocial adjustment.

Experts have clearly distinguished three main aspects within the concept of resilience:

1. The ability to achieve positive results in high-risk situations
2. The ability to function competently in situations of acute or chronic stress
3. The ability to recover from trauma

Developing resilience

Strong attachment, the effect of stress responses and the ability to challenge, controlled exposure to risk and avoidance of limitation, and the different coping strategies are related to the development of resilient capacity. The positive psychology movement promotes the teaching of positive form mental attitudes, especially in children and adolescents, thus building resilience.

Positive experiences influence health directly through healthy behaviors and social support, and indirectly as a buffer against stress. Protection factors seem to be more important in the development of resilience than risk factors. Available evidence suggests that resilience not only changes over time but also requires adjustments of the operational definition, the data sources, and the evaluation method. It is, therefore, a process that lasts a lifetime, with periods of acquisition and maintenance, and reduction and loss to be assessed.

The role of family and school are extremely important in the development of resilience in children. It has been seen that even in the presence of one significant adult in a child's life resilience development is proper and handling difficult circumstances is more effective.

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Information for this objective was taken from the following site: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3777343/

Models for practice

Child welfare academics who have focused on developing models for the practical application of resilience theory identify three fundamental building blocks of resilience:

1. A secure base, whereby, the child feels a sense of belonging and security
2. Good self-esteem, that is, an internal sense of worth and competence
3. A sense of self-efficacy, that is a sense of mastery and control, along with an accurate understanding of personal strengths and limitations.

A study conducted in a rural Australian community identified the components of community and individual resilience: Social networks and support, a positive outlook, learning, early experiences, environment and lifestyle, infrastructure and support services, sense of purpose, diverse and innovative economy, embracing differences, beliefs, and leadership. The study findings extend the concept of resilience and increase the evidence base for the design of strengths-based approaches to community development and mental health interventions.

Notable among the components were the following.

Social networking- The importance of the support provided by family, friends, or networks based upon shared cultural, economic, or recreational interests, was strongly emphasized as a foundation of both community and individual resilience. A supportive social network helped an individual to cope during hard times, and positive and caring individuals strengthened the network. Extended family networks were particularly important, with the links resulting from intermarriage, or shared interests such as faith or a profession.

Positive outlook- Having a positive outlook was seen as a crucial component of individual and community resilience across all groups within the study. Of the characteristics included within the positive outlook concept, determination and perseverance were the most frequently reported as essential components of resilience.

Learning- Learning from experience was also closely related to having a sense of purpose for some participants.

Early experience- The influence of early experiences, at both an individual and a community level, was believed to be an important component of resilience. The types of early experiences highlighted included struggle and hardship, specific cultural and heritage factors such as Italian and farming influences, and parenting or school practices. Participants believed that history shaped the future of the community and individuals.[25]

Sense of purpose- Having a sense of purpose was reported as an important element of resilience. Participants felt that having beliefs was important but the form of the belief was less important. Self-belief was an important aspect of individual resilience for many participants.

Social Psychology

This part of the course focuses on how individuals relate to one another in social situations. A social psychologist studies social attitudes, social influence, and other social phenomena.

Myers Modules 74-80 pages 753-820

8-10 % of AP Course

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Objectives

- ☐ I can apply attribution theory to explain motives (e.g., fundamental attribution error, self-serving bias).
- ☐ I can describe the structure and function of different kinds of group behavior (e.g., deindividuation, group polarization).
- ☐ I can explain how individuals respond to expectations of others, including groupthink, conformity, and obedience to authority.
- ☐ I can discuss attitudes and how they change (e.g., central route to persuasion).
- ☐ I can predict the impact of the presence of others on individual behavior (e.g., bystander effect, social facilitation).
- ☐ I can describe processes that contribute to differential treatment of group members (e.g., in-group/out-group dynamics, ethnocentrism, prejudice).
- ☐ I can articulate the impact of social and cultural categories (e.g., gender, race, ethnicity) on self-concept and relations with others.
- ☐ I can anticipate the impact of behavior on a self-fulfilling prophecy.
- ☐ I can describe the variables that contribute to altruism, aggression, and attraction.
- ☐ I can discuss attitude formation and change, including persuasion strategies and cognitive dissonance.
- ☐ I can identify important figures in social psychology (e.g., Solomon Asch, Leon Festinger, Stanley Milgram, Philip Zimbardo).

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Define and Apply the following the following Vocab and/or concepts

social psychology
attribution theory
fundamental attribution error
attitude
peripheral route persuasion
central route persuasion
foot-in-the-door phenomenon
role
cognitive dissonance theory
conformity
normative social influence
informational social influence
social facilitation
social loafing

deindividuation
group polarization
groupthink
culture
norm
prejudice
stereotype
discrimination
just-world phenomenon
ingroup
outgroup
ingroup bias
scapegoat theory
other-race effect
aggression
frustration-aggression principle

social script
mere exposure effect
passionate love
companionate love
equity
self-disclosure
altruism
bystander effect
social exchange theory
reciprocity norm
social-responsibility norm
conflict
social trap
mirror-image perceptions
self-fulfilling prophecy
superordinate goals
GRIT

Key People

Gordon Allport
Solomon Asch
Leon Festinger
Stanley Milgram
Philip Zimbardo
Richard LaPiere
Muzafer Sherif
Irving Janis
James Carlsmith
John Darley
Harold Kelley
Bibb Latane
Robert Rosenthal
Henri Tajfel

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I can discuss attitudes and how they change (e.g., central route to persuasion).

I can discuss attitude formation and change, including persuasion strategies and cognitive dissonance.

Social psychology is a broad field devoted to studying the way that people relate to others. The focus of this chapter is on the development and expression of attitudes, people's attributions about their behavior and that of others, the reasons why people engage in both antisocial and prosocial behavior, and how the presence and actions of others influence the way people behave.

A major influence on the first two areas we will discuss, attitude formation and attribution theory, is *social cognition.* This field applies many of the concepts you learned about in the field of cognition, such as memory and biases, to help explain how people think about themselves and others. The basic idea behind social cognition is that, as people go through their daily lives, they act like scientists, constantly gathering data and making predictions about what will happen next so that they can act accordingly.

ATTITUDE FORMATION AND CHANGE

One main focus of social psychology is attitude formation and change. An ***attitude*** is a set of beliefs and feelings. We have attitudes about many different aspects of our environment such as groups of people, particular events, and places. Attitudes are evaluative, meaning that our feelings toward such things are necessarily positive or negative.

A great deal of research focuses on ways to affect people's attitudes. The entire field of advertising is devoted to just this purpose. How can people be encouraged to develop a favorable attitude toward a particular brand of potato chips? Having been the target audience for many such attempts, you are no doubt familiar with a plethora of strategies used to promote favorable opinions toward a product.

The ***mere exposure effect*** states that the more one is exposed to something, the more one will come to like it. Therefore, in the world of advertising, more is better. When you walk into the supermarket, you will be more likely to buy the brand of potato chips you have seen advertised thousands of times rather than one that you have never heard of before.

Persuasive messages can be processed through the central route or the peripheral route. ***The Central route to persuasion*** involves deeply processing the content of a message in occurs when people focus on factual information, logical arguments, and a thoughtful analysis of pertinent details. For example, a car buyer bases his or her decision on such factual factors as a car's gas mileage, its rating by outside experts, the quality of airbags, antilock brakes, seat belts, and other safety features.

The ***Peripheral route to persuasion*** on the other hand refers to when people focus on emotional appeals and incidental cues. For example, a car buyer bases his or her decision on such incidental factors as the likeability of the car dealer, the car's color, and catchy sales slogans.

Certain characteristics of the communicator, have been found to influence the effectiveness of a message. Attractive people, famous people, and experts are among the most persuasive communicators. As a result, professional athletes and movie stars often have second careers making commercials.

Certain characteristics of the audience also affect how effective a message will be. Some research suggests that more educated people are less likely to be persuaded by advertisements.

Finally, the way the message is presented can also influence how persuasive it is. Research has found that when dealing with a relatively uninformed audience, presenting a one-sided message is best. However, when attempting to influence a more sophisticated audience, communication that acknowledges and then refutes opposing arguments will be more effective. Some research suggests that messages that arouse fear are effective. However, too much fear can cause people to react negatively to the message itself.

COMPLIANCE STRATEGIES - Often people use certain strategies to get others to comply with their wishes. Such compliance strategies have also been the focus of much psychological research.

One technique is ***the foot-in-the-door phenomenon***. The Foot-in-the-door phenomenon is the persuasion strategy of getting a person to agree to a modest first request as a set-up for a later, much larger, request. For example, a car dealer persuades you to buy a car with upgraded seats and then convinces you to buy the car with a complete upgraded interior. Another common example of the foot-in-the-door phenomenon occurs when volunteers ask you to sign a petition and then follow-up with a request for a donation to their cause.

The ***door-in-the-face strategy*** argues that after people refuse a large request, they will look more favorably upon a follow-up request that seems, in comparison, much more reasonable. After flat-out refusing to lend you $100, your friend might feel bad. The least he or she could do is lend you $20.

Another common strategy involves using ***norms of reciprocity***. People tend to think that when someone does something nice for them, they ought to do something nice in return. Norms of reciprocity is at work when you feel compelled to send money to the charity that sent you free return address labels or when you cast your vote in the student election for the candidate that handed out those delicious chocolate chip cookies.

THE RELATIONSHIP BETWEEN ATTITUDES AND BEHAVIOR

Although you might think that knowing people's attitudes would tell you a great deal about their behavior, research has found that the relationship between attitudes and behaviors is far from perfect. In 1934, ***Richard LaPiere*** conducted an early study that illustrated this difference. In the United States in the 1930s, prejudice, and discrimination against Asians were pervasive. LaPiere traveled throughout the West Coast visiting many hotels and restaurants with an Asian couple to see how they would be treated. On only one occasion were they treated poorly due to their race. A short time later, LaPiere contacted all of the establishments they had visited and asked about their attitudes toward Asian patrons. Over 90 percent of the respondents said that they would not serve Asians. This finding illustrates that attitudes do not perfectly predict behaviors.

ATTITUDE CHANGE: COGNITIVE DISSONANCE - The theory of cognitive dissonance was first proposed by ***Leon Festinger***, a research psychologist at Stanford. ***Cognitive dissonance*** is the state of psychological tension, anxiety, and discomfort that occurs when an individual's attitude and behavior are inconsistent. Festinger explained that "if a person is induced to do or say something contrary to his private opinion, there will be a tendency for him to change his opinion to bring it into correspondence with what he has said or done." Festinger believed that human beings are motivated to reduce the tensions resulting from inconsistent attitudes and actions. Although it is possible to reduce dissonance by changing either one's behavior or one's attitude, most people modify their attitudes.

Examples

Kristin is aware that smoking is harmful to her health. According to cognitive dissonance theory, Kristin will most likely resolve the tension between her attitude and her behavior by denying the relationship between smoking and lung cancer or rationalizing that smoking is a social activity that helps her fit in with her friends.

Austin impulsively buys an expensive pair of sneakers that he really cannot afford. He then rationalizes the purchase by insisting that the shoes were a good buy and will improve his basketball performance.

Leon Festinger and ***James Carlsmith*** conducted a classic experiment about cognitive dissonance in the late 1950s. Their participants performed a boring task and were then asked to lie and tell the next subject (actually a confederate1 of the experimenter) that they had enjoyed the task. In one condition, subjects were paid $1 to lie, and in the other condition they were paid $20. Afterward, the participants' attitudes toward the task were measured. Contrary to what reinforcement theory would predict, those subjects who had been paid $1 were found to have significantly more positive attitudes toward the experiment than those who were paid $20.

According to Festinger and Carlsmith, having already said that the boring task was interesting, the subjects were experiencing dissonance. However, those subjects who had been paid $20 experienced relatively little dissonance; they had lied because they had been paid $20. On the other hand, those subjects who were paid only $1 lacked sufficient external motivation to lie. Therefore, to reduce the dissonance, they changed their attitudes and said that they did enjoy the experiment.

For more information on this experiment please read: study 24

I can apply attribution theory to explain motives (e.g., fundamental attribution error, self-serving bias).

Attribution theory

Attribution theory is another area of study within the field of social cognition. Attribution theory tries to explain how people determine the cause of what they observe. For instance, if your friend Max told you he got a perfect score on his math test, you might find yourself thinking that Max is very good at math. In that case, you have made a ***dispositional or person attribution***.

Dispositional factors include personality traits, such as level of motivation and willingness to work**.**

Alternatively, you might attribute Max's success to a situational factor, such as an easy test; in that case, you make a ***situation attribution***. Situation attribution is attributing outcomes to external or environmental factors.

Attributions can also be stable or unstable. If you infer that Max has always been a math whiz, you have made both a person attribution and a stable attribution, also called a person-stable attribution. ***Stable attribution*** implies that the conditions are always present.

On the other hand, if you think that Max studied a lot for this one test you have made a person-unstable attribution. ***Unstable attribution*** implies that factors are unstable and perhaps only occur on occasion.

Similarly, if you believe that Ms. Mahoney, Charley's math teacher, is an easy teacher, you have made a ***situation-stable attribution***. If you think that Ms. Mahoney is a tough teacher who happened to give one easy test, you have made a ***situation-unstable attribution***.

	Stable	Unstable
Dispositional	Intelligence, personality, judgement, willpower "He's just not a good singer"	Moods, exertion of effort in a specific task, momentary whims "She wasn't trying hard enough"
Situational	Institutional factors, economics, social structures such as race, gender, class "The judges always go easier on girls"	Coincidence, weather, dumb luck "You're lucky I had a sore throat today"

Harold Kelley put forth a theory that explains the kind of attributions people make based on three kinds of information: consistency, distinctiveness, and consensus. ***Consistency*** refers to how similar the individual acts in the same situation over time. How does Max usually do on his math tests? ***Distinctiveness*** refers to how similar this situation is to other situations in which we have watched Max. Does Max do well on all tests? Has he evidenced an aptitude for math in other ways? ***Consensus*** asks us to consider how others in the same situation have responded. Did many people get a perfect score on the math test?

Consensus is a particularly important piece of information to use when determining whether to make a person or situation attribution. If Max is the only one to earn such a good score on the math test, we seem to have learned something about Max. Conversely, if everyone earned a high score on the test, we would suspect that something in the situation contributed to that outcome.

Consistency, on the other hand, is extremely useful when determining whether to make a stable or unstable attribution. If Max always aces his math tests, then it seems more likely that Max is particularly skilled at math than that he happened to study hard for this one test. Similarly, if everyone always does well on the teacher's tests, we would be likely to make the situation-stable attribution that she is an easy teacher. However, if Max usually scores low in the teacher's class, we will be more likely to make a situation-unstable attribution such as this particular test was easy.

Attributional Biases

Although people are quite good at sifting through all the data that bombards them and then making attributions, you will probably not be surprised to learn that errors are not uncommon. Moreover, people tend to make the same kinds of errors. A few typical biases are the fundamental attribution error, false-consensus effect, self-serving bias, and just-world belief.

When looking at the behavior of others, people tend to overestimate the importance of dispositional factors and underestimate the role of situational factors. This tendency is known as the ***fundamental attribution error***. Say that you are driving and someone is speeding and cuts you off. Most people will conclude that the driver is dangerous, irresponsible, and just plain rude. But if you find yourself speeding and cutting people off, you may say that your actions may be attributed to the situation of being late to an important meeting. The point is that people systematically seem to overestimate the role of dispositional factors in influencing another person's actions.

Interestingly, people do not have evidence of this same tendency in explaining their behaviors. You know that you are usually an extremely careful and considerate driver. Since people get to view themselves in countless situations, they are more likely to make situational attributions about themselves than about others. Everyone has careful at times and reckless at others. Thus, people are more likely to say that their behavior depends upon the situation.

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There is one caveat of the fundamental attribution error. The fundamental attribution was named fundamental because it was believed to be so widespread. However, many cross-cultural psychologists have argued that the fundamental attribution error is far less likely to occur in collectivist cultures than in individualistic cultures. In an individualistic culture, like the American culture, the importance and uniqueness of the individual is stressed. In more collectivist cultures, like Japanese culture, a person's link to various groups such as family or company is stressed. Cross-cultural research suggests that people in collectivist cultures are less likely to commit the fundamental attribution error, perhaps because they are more attuned to the ways that different situations influence their own behavior.

The tendency for people to overestimate the number of people who agree with them is called the ***false-consensus effect***. For instance, if Jamal dislikes horror movies, he is likely to think that most other people share his aversion. Conversely, Sabrina, who loves a good horror flick, overestimates the number of people who share her passion.

Self-serving bias is the tendency to take more credit for good outcomes than for bad ones. For instance, a basketball coach would be more likely to emphasize her or his role in the team's championship win than in their heartbreaking first-round tournament loss.

Researchers have found that people evidence a bias toward thinking that bad things happen to bad people. This belief in a just world, known simply as the ***just-world bias***, in which misfortunes befall people who deserve them, can be seen in the tendency to blame victims. For example, a woman was hit by a car because she was stupidly walking on a dangerous road. People are unemployed because they are lazy. If the world is just in this manner, then, assuming we view ourselves as good people, we need not fear bad things happening to us.

Test Tip

The fundamental attribution error and the self-serving bias have generated more multiple-choice questions than any other social psychological concepts. Questions typically ask you to apply these concepts to a situation from everyday life. For example, when students attribute their high history grades to hours of extra study and their low chemistry grades to impossible test questions, they are exhibiting the self-serving bias.

Test Tip

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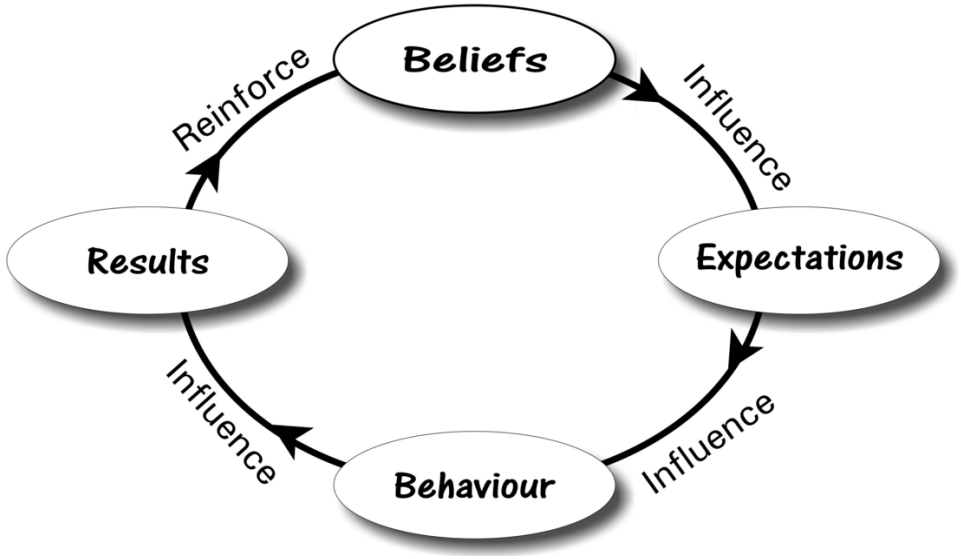
I can anticipate the impact of behavior on a self-fulfilling prophecy.

People often have certain ideas or prejudices about other people before they even meet them. These preconceived ideas can affect the way someone acts toward another person. Even more interesting is the idea that the expectations we have about others can influence the way those others behave, recall the ***self-fulfilling prophecy*** phenomenon For instance, if Jon is repeatedly told that Chet, whom he has never met, is really funny when Jon does finally meet Chet, he may treat Chet in such a way as to elicit the humorous behavior he expected.

A classic study involving self-fulfilling prophecies was ***Robert Rosenthal*** and **Lenore Jacobson's** (1968) "Pygmalion in the Classroom" experiment. They administered a test to elementary school children that supposedly would identify those children who were on the verge of significant academic growth. In reality, the test was a standard IQ test. These researchers then randomly selected a group of children from the population who took the test, and they informed their teachers that these students were ripe for such intellectual progress. Of course, since the children were selected randomly, they did not differ from any other group of children in the school. At the end of the year, the researchers returned to take another measure of the students' IQ and found that the scores of the identified children had increased more than the scores of their classmates. In some way, the teachers' expectations that these students would bloom intellectually over the year caused the students to outperform their peers

For more information on Self-fulfilling Prophecy please read: Study 13



Test Tip

Students often confuse self-serving bias and self-fulfilling prophecies, ostensibly because they both contain the word self.
Self-serving bias is the tendency to overstate one's role in a positive venture and underestimate it in a failure. Thus, people serve themselves by making themselves look good.
Self-fulfilling prophecies, on the other hand, explain how people's ideas about others can shape the behavior of those others.

Test Tip

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I can predict the impact of the presence of others on individual behavior (e.g., bystander effect, social facilitation).

THE INFLUENCE OF GROUPS ON INDIVIDUAL BEHAVIOR

SOCIAL FACILITATION AND SOCIAL INHIBITION

Psychologist ***Gordon Allport*** introduced the notion that the presence of others (the social group) can facilitate certain behavior. ***Social facilitation*** is the tendency for an individual's performance to improve when simple or well-rehearsed tasks are performed in the presence of others.

Social inhibition is the tendency for an individual's performance to decline when complex or poorly-learned tasks are performed in the presence of others.

Examples:
James Michaels and his associates (1982) found that the performance of expert pool players improved when they played in front of an audience. In contrast, poor players performed worse when they played in front of an audience. The presence of an audience often inspires well-trained actors and dancers to raise their performance to a new level. However, the pressure of an audience can have the opposite effect on poorly prepared actors and dancers.

SOCIAL LOAFING

Social loafing is the phenomenon of people making less effort to achieve a goal when they work in a group rather than when they work alone.

Causes
People believe that their contribution to the collective effort is neither appreciated nor important. People believe they will "get a free ride" since it will be difficult to assess their contribution to the team or group.

Examples:
An art teacher divides his class into groups and assigns each group the task of preparing an oral report on a famous Renaissance artist. Each group will select one member to present their report. Since all members of the group will receive the same grade, the method invites social loafing.

The local animal shelter previously published a report listing the names of individual contributors. However, the new shelter director switched to a report that simply listed the total contribution. The change in reporting made contributors feel less appreciated and important, thus inviting social loafing and a decline in individual contributions.

THE BYSTANDER EFFECT

The bystander effect is a social psychological phenomenon in which individuals are less likely to assist in an emergency when other people are present.

Causes

Group size is the best predictor of bystander intervention. Counterintuitively, as the size of a group present at the scene increases, the likelihood that anyone will help a person in need decreases. As the size of the group increases, bystanders experience a ***diffusion of responsibility***. Since responsibility is not explicitly assigned, bystanders assume that someone else will act. Each bystander feels less responsible and thus fails to do anything.

Another factor contributing to the bystander effect is known as ***pluralistic ignorance***. People seem to decide what constitutes appropriate behavior in a situation by looking at others. Thus, if no one in a classroom seems worried by the black smoke coming through the vent, each individual concludes that taking no action is the proper thing to do.

The case of Kitty Genovese

Kitty Genovese was a 28-year-old woman who managed a late-night bar in Queens, New York. At 3:20 a.m. on March 13, 1964, a serial rapist and murderer attacked Ms. Genovese as she approached her apartment building. Although Ms. Genovese repeatedly screamed for help, none of the neighbors came to her aid. After 30 minutes, someone finally called the police. The police rushed to the scene only to find that Ms. Genovese had been fatally wounded.

Apathy at Stabbing of Queens Woman Shocks Inspector

By MARTIN GANSBERG

For more than half an hour 38 respectable, law-abiding citizens in Queens watched a killer stalk and stab a woman in three separate attacks in Kew Gardens.

Twice the sound of their voices

Conditions that promote bystander intervention

Kitty Genovese's tragic death focused public attention on the reasons why bystanders failed to come to her rescue. Initially, editorial writers blamed apathy and the depersonalization of life in big cities.

Led by ***Bibb Latane*** and ***John Darley***, social psychologists conducted hundreds of investigations into the conditions under which bystanders will help others. Researchers found that bystanders are more likely to help if they see others who are willing to help, if they know or are told how to assist, and if the person in trouble asks a specific person to assist.

Please read: Study 39

I can describe the structure and function of different kinds of group behavior (e.g., deindividuation, group polarization).

DEINDIVIDUATION - ***Deindividuation*** refers to the reduction of self-awareness and personal responsibility that can occur when a person is part of a group whose members feel anonymous.

Causes

Individuals become immersed in a group and lose a sense of self-awareness. The growing sense of anonymity lowers personal accountability so that individuals no longer feel responsible for their actions. The group thus "assumes" responsibility for aggressive or destructive actions that individuals would not commit if they were alone. A common example of this can be found in rioting or mischief after a team wins a championship.

The Stanford Prison Experiment

One famous experiment that showed not only how such conditions can cause people to deindividuate but also the effect of roles and the situation in general, is ***Phillip Zimbardo's*** prison experiment. Zimbardo assigned a group of Stanford students to either play the role of a prison guard or prisoner. All were dressed in uniforms and the prisoners were assigned numbers. The prisoners were locked up in the basement of the psychology building, and the guards were put in charge of their treatment. The students took to their assigned roles perhaps too well, and the experiment had to be ended early because of the cruel treatment the guards were inflicting on the prisoners.

In August 1971, psychology professor Philip Zimbardo converted the basement of Stanford University's psychology building into a mock prison. Zimbardo placed ads in local papers offering to pay volunteers $15.00 a day to participate in a two-week "prison simulation." Zimbardo and his team of research assistants selected 24 middle-class, educated young men. The participants were then randomly assigned to the role of either guard or prisoner.

Zimbardo deliberately promoted the deindividuation of both the guards and the prisoners. The guards wore identical khaki uniforms and mirror sunglasses that prevented anyone from seeing their eyes or reading their emotions. They also carried billy clubs, whistles, and handcuffs. The prisoners all wore stocking caps and hospital dressing gowns. They were identified by numbers sewn into their gowns. The experiment quickly grew out of hand as some of the guards turned sadistic, humiliating the prisoners verbally and physically. Alarmed by the guards' cruel behavior, Zimbardo called off the experiment after just six days.

The Zimbardo Prison Experiment provides a vivid illustration of the powerful effects of deindividuation. As the guards became immersed in their roles, they developed a strong group cohesion that reduced their sense of personal responsibility. As they stopped viewing the prisoners as individual human beings, the guards' behavior became increasingly aggressive.

Please Read: Study 37

Group Polarization refers to the tendency for a group's predominant opinion to become more extreme after an issue is discussed. It is important to note the difference between group polarization and conformity. Group polarization is an intensification of a group's prevailing opinion. In contrast, conformity occurs when an individual changes his or her attitude to become more like the group's attitude.

Examples
Myers and Bishop (1970) discovered that discussing racial issues decreased prejudice in a low-prejudice group of high school students and increased it in a high-prejudice group. Discussions among a stop-smoking self-help group increase the members' resolve to quit smoking.

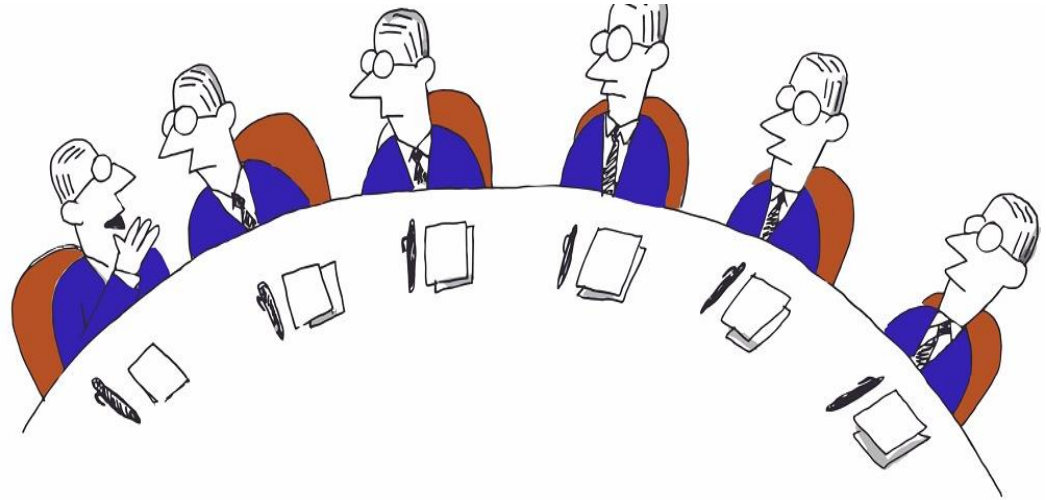
Please watch: SOCIAL THINKING

I can explain how individuals respond to expectations of others, including groupthink, conformity, and obedience to authority.

Groupthink is the tendency for a cohesive decision-making group to ignore or dismiss reasonable alternatives. Leaders can counteract groupthink by encouraging divergent views, consulting outside experts, and assigning people to play the role of "devil's advocate."

Examples
In early 1961, President Kennedy and his team of national security advisors approved an ill-conceived plan to allow 1,200 anti-communist exiles to invade Cuba in an attempt to Overthrow Fidel Castro. Castro's forces easily repelled the invasion, handing President Kennedy a humiliating defeat.

In 2003, President Bush and his team of national security advisors approved an invasion of Iraq was designed to overthrow Saddam Hussein and locate his presumed arsenal of weapons of mass destruction. The United States successfully defeated Saddam Hussein's forces but failed to find any weapons of mass destruction.



"Diversity is good. Pass it down."

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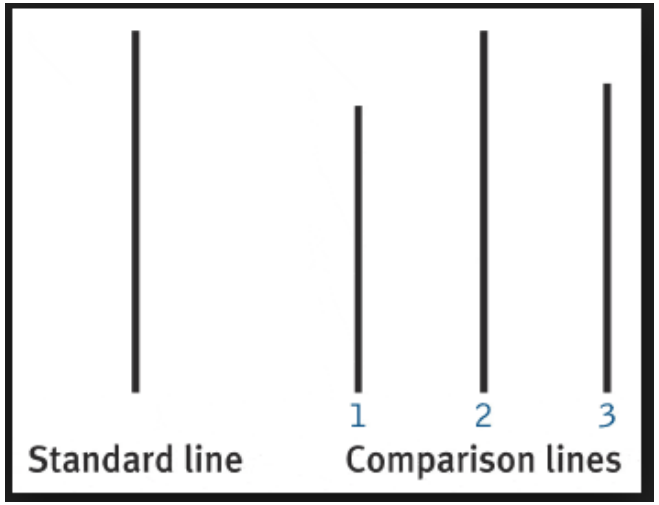
SOCIAL INFLUENCE: CONFORMITY

Conformity is the tendency for people to adopt the behavior, attitudes, and beliefs of other members of a group. Conformity can be in response to real or imagined group pressure.



THE ASCH CONFORMITY EXPERIMENTS

The Asch conformity experiment is considered the most famous study of the factors associated with conformity to group pressure. ***Solomon Asch*** began his experiments by inviting seven to nine male students into a college classroom. One of these students was a "naïve subject" who was unaware of the experiment's true purpose. All the others were "instructed students" who had previously met with Asch and had carefully rehearsed their experimental roles.

By pre-arranged agreement, the instructed students took their seats, always leaving a seat near the end for the naïve subject. By placing his subjects in this order, Asch insured that the naïve subject would receive "the full impact of the majority trend before uttering his judgments."

When the subjects were in their seats, Asch showed them a series of cards. A standard line was always clearly displayed on the left. Three companion lines numbered 1, 2, and 3 were always on the right. Asch asked each subject to pick the companion line that matched the standard line.

Unknown to the naïve subject, on twelve of the eighteen trials the instructed subjects deliberately gave the wrong answer. Thus, on twelve trials the naïve subject was confronted with a contradiction between what he saw and what a unanimous majority reported.

Asch found that 76 percent of the naïve subjects agreed with the incorrect majority opinion at least once, while 5 percent conformed every time. Altogether, the naïve subjects followed the majority by giving the wrong answer in 37 percent of the critical trials.

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Please read: Study 38

FACTORS THAT PROMOTE CONFORMITY

1. *The size of the majority*
Asch varied the size of the informed majority by using groups of between one and fifteen people. Asch found that the naïve subjects resisted groups of only one or two members. However, conformity increased as the size of the informed majority increased from three to seven members. Interestingly, as the group size increased beyond seven members, conformity leveled off and slightly decreased.

2. *The unanimity of the majority*
The unanimity of the majority made a striking impact on the amount of conformity. When Asch planted a "partner" who disagreed with the majority, conformity by the naïve subjects dropped to about one-fourth of their former level.

3. *The characteristics of the majority*
Conforming behavior was greatest among naïve subjects who were attracted to the group. Naïve subjects, who expected to have future interaction with the group and had a relatively low status in the group, demonstrated the highest levels of conformity.

4. *The difficulty of the task*
As the difficulty of the experimental task increased, conformity increased. Asch reported a higher level of conformity when the difference between the standard line and the companion line was smaller.

Khan Academy
Conformity and Groupthink

Chameleon effect (automatic or unconscious mimicry): a person will unconsciously mimic or adopt behaviors, mannerisms, and actions of people or of an individual with whom they are interacting.

Chartrand and Bargh explored the chameleon effect by having students work in a room alongside another person, a confederate, who would sometimes rub their faces or shake their feet. The students mimicked the rubbing or shaking when they were in the same room.

SOCIAL INFLUENCE: OBEDIENCE TO AUTHORITY

Obedience is the performance of an action in response to the direct orders of an authority or person of higher status.

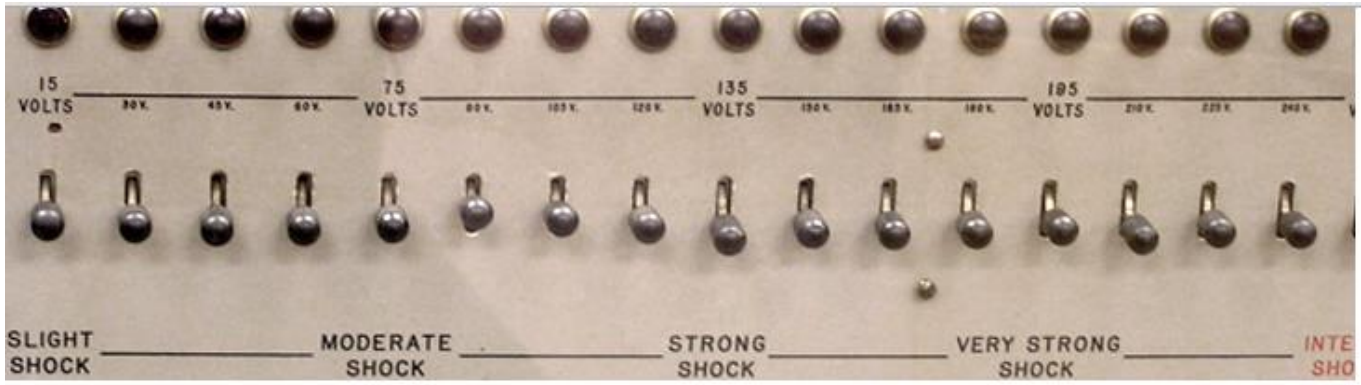
Stanley Milgram's OBEDIENCE EXPERIMENTS

Milgram's famous experiments on obedience began in July 1961 at Yale University. Milgram's controversial findings sparked debate about the willingness of ordinary citizens to obey an authority figure who instructed them to perform actions that conflicted with their values. In addition, Milgram's use of deception influenced the debate about the proper code of ethics in psychological research.

Milgram's basic experimental design involved three people: An experimenter played by a 31-year-old high school biology teacher. The experimenter wore a white technician's coat to enhance his status as an authority figure. A learner or victim played by an affable 47-year-old Irish-American accountant. A teacher or subject who responded to an ad offering volunteers $4.00 (equal to approximately $30.00 today) to participate in a one-hour "memory and learning test." The subjects represented a wide range of educational and occupational backgrounds.

The experimenter began by explaining that he was testing the effects of punishment on learning and memory. The learner would be required to memorize a long list of word pairs such as "slow dance," "nice day," and "blue box." The learner was later required to pick the correct match from a list of several words read by the volunteer teacher. For example, the teacher would read: "Blue: sky, ink, box, lamp" and the learner was supposed to respond, "box."

When the learner gave the correct answer, the teacher would proceed to the next word pair. However, when the learner made a mistake, the experimenter instructed the teacher to punish him with an electric shock delivered by a realistic, but bogus, shock generator.



The shock generator could supposedly deliver shocks ranging from 15 volts to 450 volts. The 30 switches were clearly labeled from "Slight Shock" up to "Danger: Severe Shock." The 435-volt and 450-volt switches were simply marked "XXX."

The experimenter instructed the teacher to begin with a 15-volt shock and then raise the voltage one 15-volt level at a time. It is important to note that the volunteer teacher was given a 45-volt sample of "Slight Shock." This was the only real shock given in the entire experiment.

Milgram carefully rehearsed the responses used by both the learner and the experimenter. The learner's protests were carefully coordinated to the "shock" being administered by the teacher. At 75 volts, the learner was instructed to express "a little grunt." At 125 volts, the learner shouted to the experimenter that the shocks were becoming painful. At 150 volts, he cried out: "Experimenter, get me out of here! I won't be in this experiment anymore! I refuse to go on!" At 180 volts, he cried out: "I can't stand the pain!" At 300 volts, he shouted in desperation that he would no longer provide answers to the memory test. At 315 volts, following a "violent scream," he reaffirmed his prior refusal to continue participating. At 330 volts, the learner hysterically demanded, "Let me out of here! You have no right to hold me here! Let me out!" After 330 volts, the learner was not heard from again.

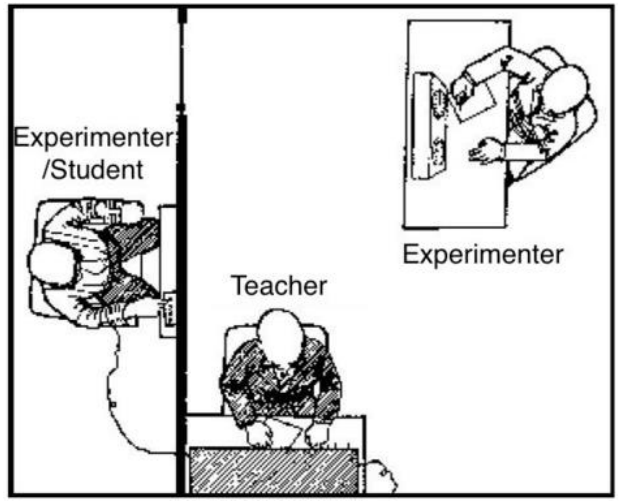
When the teacher showed any resistance to the experimenter's commands, the experimenter responded with one of the following commands:

Prod 1: Please continue.

Prod 2: The experiment requires that you continue.

Prod 3: It is essential that you continue.

Prod 4: You have no other choice, you must go on.



If the subject insisted on stopping after hearing all four verbal prods, the experimenter halted the experiment. Otherwise, the experiment was halted after the subject was administered the maximum 450-volt shock.

MILGRAM'S SHOCKING RESULTS

Before experimenting, Milgram asked 39 psychiatrists to predict the results. They guessed that most subjects would stop at 150 volts, that about 4 percent would go as high as 300 volts, and that just one person in 1,000 would go all the way to 450 volts.

The psychiatrists were wrong. Twenty-six people, or 65 percent of the 40 teachers in the first experimental version, gave the learner a 450-volt "shock."

Numerous replications by Milgram and other researchers produced almost identical results. It is important to note that female subjects were as likely to inflict pain on a stranger as male subjects.

FACTORS THAT PROMOTE OBEDIENCE

1. American society places a high value on obedience to people in positions of legitimate authority. We are taught that good children, students, and employees obey instructions and do not cause trouble. Milgram speculated that his subjects' inability "to invent a disobedient response" may be symptomatic of the pressures in our culture to conform.

2. Milgram believed that the volunteers were decisively influenced by their role of "subjects" in a scientific experiment. The role of the "good subject" committed them to follow the instructions of a scientist who was seen as a legitimate and trusted authority.

3. Milgram also believed that what he called the "small ignoble emotion–embarrassment" played an important role. His subjects simply couldn't bring themselves to disrupt what appeared to be a legitimate experiment.

FACTORS THAT REDUCE OBEDIENCE

1. Milgram conducted variations of his experiment on approximately 1,000 subjects. Taken together, his experiments comprise one of the largest research programs in the history of social psychology.

2. Milgram's additional experiments identified several conditions that reduced the willingness of his subjects to obey the experimenter:

When subjects were allowed to freely select the shock level, 95 percent of them did not go beyond 150 volts.

When subjects observed other subjects who refused to obey the experimenter's orders, 90 percent of them refused to continue. It is very important to note that this finding corroborates Asch's discovery that subjects will stand by their convictions when they are supported by a dissenter or role model.

AP Psychology test writers expect students to be thoroughly familiar with Milgram's classic study of obedience to authority.

Be sure you know that 65 percent of participants administered the highest voltage shock, that subjects were least likely to deliver maximum levels of shock when they observed dissenters who refused to obey the experiment's orders, and that psychiatrists significantly underestimated the subject's level of obedience.

Please read: study 40

Please watch: SOCIAL INFLUENCE

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I can articulate the impact of social and cultural categories (e.g., gender, race, ethnicity) on self-concept and relations with others.

Social Norms- ***Social Norms*** are unwritten rules about how to behave. They provide us with an expected idea of how to behave in a particular social group or culture. For example, we expect students to arrive at lessons on time and complete their work. The idea of norms provides a key to understanding social influence in general and conformity in particular. Social norms are the accepted standards of behavior of social groups.

These groups range from friendship and work groups to nation-states. Behavior that fulfills these norms is called conformity, and most of the time roles and norms are powerful ways of understanding and predicting what people will do.

Norms are defining appropriate behavior for every social group. For example, students, neighbors, and patients in a hospital are all aware of the norms governing behavior. And as the individual moves from one group to another, their behavior changes accordingly.

Norms provide order in society. It is difficult to see how human society could operate without social norms. Human beings need norms to guide and direct their behavior, to provide order and predictability in social relationships, and to make sense of and understand each other's actions. These are some of the reasons why most people, most of the time, conform to social norms.

Self-Concept can be broken down into two types of identities: Personal and Social.

1. **Personal Identity** is the concept you develop about yourself that evolves over the course of your life. This may include aspects of your life that you have no control over, such as where you grew up or the color of your skin, as well as choices you make in life, such as how you spend your time and what you believe.

2. **Social identity** is a person's sense of who they are based on their group membership(s). Tajfel (1979) proposed that the groups (e.g. **social** class, family, football team, etc.) which people belonged to were an important source of pride and self-esteem.

People in society and cultures develop categories such as gender, race, and ethnicity. An individual's identity is often shaped by the social categories that they identify with, this in turn impacts their self-concept and their behaviors. As a result, Identities can be viewed as a blend of how one views themselves and how they perceive the regard of others.

Please watch: [Self concept, self identity, and social identity | Individuals and Society | MCAT | Khan Academy]

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I can describe processes that contribute to differential treatment of group members (e.g., in-group/out-group dynamics, ethnocentrism, prejudice).

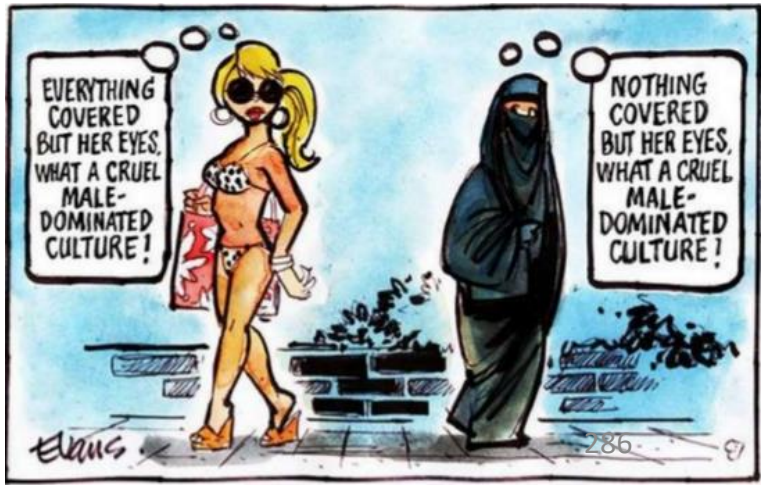
DIFFERENTIAL TREATMENT OF GROUP MEMBERS

Henri Tajfel's greatest contribution to psychology was social identity theory. According to Tajfel, we divided the world into "them" and "us" based on a process of social categorization (i.e. we put people into social groups). This is known as in-group (us) and out-group (them).

Social identity theory states that the in-group will discriminate against the out-group to enhance their self-image. The central hypothesis of social identity theory is that group members of an in-group will seek to find negative aspects of an out-group, thus enhancing their self-image.

IN-GROUPS - An ***in-group*** is a group a person identifies with and feels that he or she belongs to. The in-group bias is the tendency to judge the behavior of in-group members favorably and out-group members unfavorably. The ***in-group bias*** can hinder the efforts of outsiders to join a new group. In-group members would perceive the new person as different and would not make him or her feel welcome. Researchers have found that in-group bias occurs even when groups are randomly assigned.

OUT-GROUPS - An ***out-group*** is a group with which a person does not identify and does not feel as if he or she belongs. The out-group homogeneity effect is the tendency to see members of the out-group as very similar to one another.



ETHNOCENTRISM - Ethnocentrism is the tendency to consider one's norms, culture, customs, and values superior to others. European explorers and Native Americans frequently expressed ethnocentric judgments toward each other's cultures. For example, Amerigo Vespucci insisted that the Native Americans' "manner of living is very barbarous because they do not eat at fixed times, but as often as they please."

STEREOTYPES - A ***stereotype*** is a generalized belief about a group of people in which identical characteristics are assigned to virtually all members of the group, regardless of actual variation among the members. The mental image of members of a group that exaggerates or oversimplifies their characteristics. The famous journalist Walter Lippman coined the term "stereotype" to refer to "pictures in our heads" that accompany a category of people. Stereotypes can be either positive or negative. For example, what mental images do you associate with football linemen and beauty queens?

"All purple aliens are mean."

PREJUDICE – ***Prejudice*** is an attitude or feeling, favorable or unfavorable, toward a person or group of people, before, or not based on experience. Prejudice can be both positive and negative. However, most research focuses on the causes and consequences of negative forms of prejudice.

"I don't like purple aliens."

Social factors that contribute to prejudice:
Social divisions based upon in-groups and out-groups promote negative stereotypes and prejudice. Inequalities between "haves," who possess wealth, power, and prestige, and "have-nots," who lack social status, promote prejudice.

Emotional factors that contribute to prejudice
Psychological studies and historic examples both indicate that frustration intensifies prejudice. Frustration is often directed toward an innocent target known as a scapegoat. For example, Christians served as scapegoats for Rome's military defeats in the 3rd century; Jews served as scapegoats for Germany's defeat in World War I; and African Americans served as scapegoats for the South's defeat in the Civil War.

Prejudice is often directed at groups perceived as threatening important cultural values. For example, prejudice directed at gays and lesbians is incited by the belief that these groups threaten important family values.

Cognition:
According to Gordon Allport, "The human mind must think with the aid of categories… Once formed, categories are the basis for normal prejudgment. We cannot possibly avoid this process. Orderly living depends upon it."

Realistic Conflict Theory
According to ***Muzafer Sherif,*** we compete over scarce resources. During the competition, the "other" is considered an enemy to justify trying to "win." They are then dehumanized and scapegoated to justify the label of the enemy.

DISCRIMINATION - ***Discrimination*** refers to differential treatment, usually negative, directed at a member or members of a group simply because of their membership in that group.

"Purple aliens cannot shop at my store."

Combating Prejudice

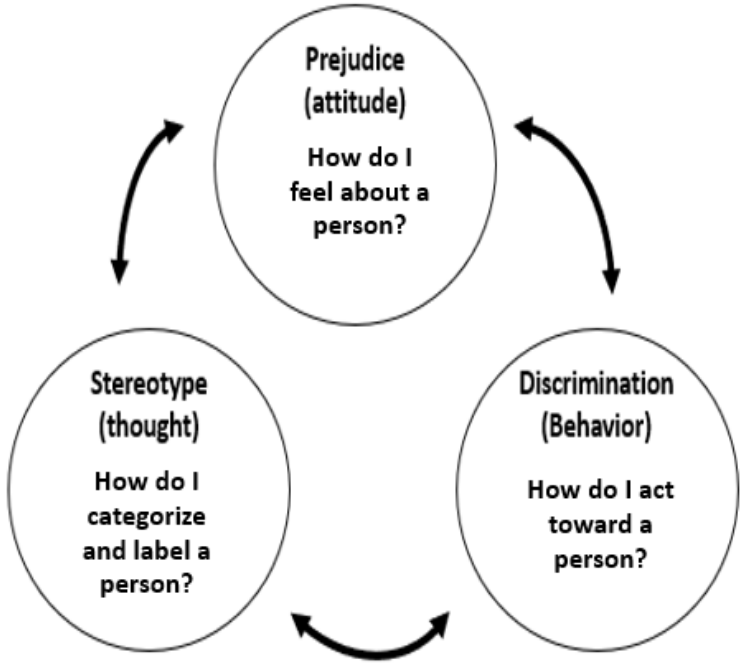
One theory about how to reduce prejudice is known as the contact theory. The contact theory, as its name suggests, states that contact between hostile groups will reduce animosity, but only if the groups are made to work toward a goal that benefits all and necessitates the participation of all. Such a goal is called a superordinate goal.

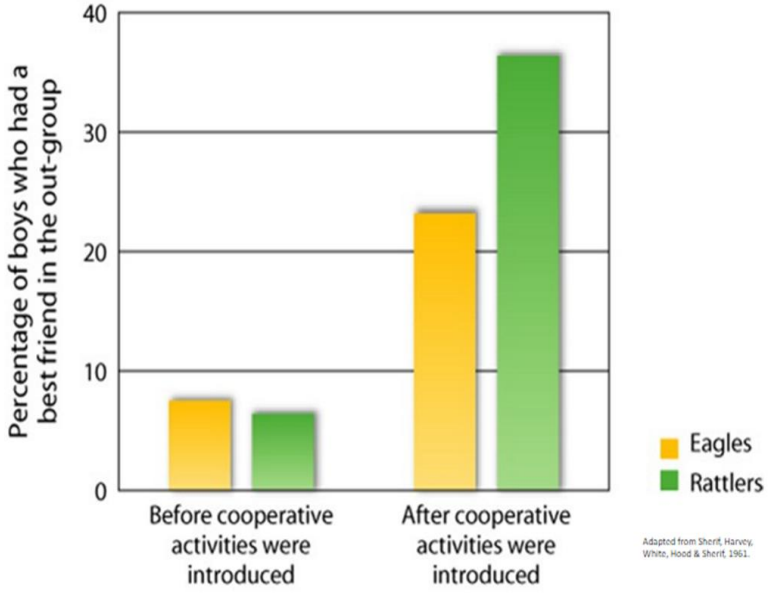
Muzafer Sherif's (1966) camp study (also known as the Robbers Cave study) illustrates both how easily out-group bias can be created and how superordinate goals can be used to unite formerly antagonistic groups. He conducted a series of studies at a summer camp. He first divided the campers into two groups and arranged for them to compete in a series of activities. This competition was sufficient to create negative feelings between the groups. Once such prejudices had been established, Sherif staged several camp emergencies that required the groups to cooperate. The superordinate goal of solving the crises effectively improved relations between the groups.

Sherif identified six conditions when increase contact reduces prejudice:

1. Mutual interdependence 2. Common goals 3. Equal status 4. Friendly, informal settings, knowing multiple outcome members, and social norms of equality.

Several educational researchers have attempted to use the contact theory to reduce prejudices between members of different groups in school. One goal of most cooperative learning activities is to bring members of different social groups into contact with one another as they work toward a superordinate goal, the assigned task.





Please watch: **PREJUDICE & DISCRIMINATION**

I can describe the variables that contribute to altruism, aggression, and attraction.

Altruism is an unselfish concern for the welfare of others.

Reason why we WOULD help others:

1. The person appears to need and deserve help.
2. The person is in some way similar to us.
3. The person is a woman.
4. We have just observed someone else being helpful.
5. We are not in a hurry.
6. We are in a small town or rural area.
7. We are feeling guilty.
8. We are focused on others and not preoccupied.
9. We are in a good mood.

Reasons why we may NOT help others:

1. Could be highly dangerous
2. Could make you financially liable
3. Could embarrass you
4. Low self-confidence
5. Bystander effect

Reciprocity norm refers to the idea that people are more likely to help someone if they are going to get something out of it.

Social-responsibility norm suggests that we should help those who need our help, even if the costs outweigh the benefits.

(Collective) Social traps are situations in which conflicting parties each pursue their self-interests and become caught in mutually destructive behavior. This perceived incompatibility of actions and goals creates a conflict. Example: Each CB West driver decides that it is more convenient to drive their car to school than to take the bus. Individual behavior affects the welfare of others and one's self. Because everyone wants to drive for "convenience," driving becomes inconvenient for all. The mass of cars in D-town causes a lack of parking spaces and kids getting up way too early to secure street spots. Each driver has been drawn into a social trap.

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AGGRESSION

Aggression refers to behavior that is intended to cause harm.

BIOLOGICAL INFLUENCES

Evolutionary psychologists believe that humans are instinctively aggressive.
Alcohol abuse is a major factor in many forms of aggression.
Research studies have linked the male hormone testosterone with aggressive behavior.

PSYCHOSOCIAL INFLUENCES

According to the ***frustration-aggression*** hypothesis, frustration can ignite anger that may lead to aggression. Anger is reactive.
Over 1,000 studies support the connection between exposure to media violence and the likelihood that someone will behave aggressively.
Social rejection, minimal parental control, especially by the father, and parental models of aggression all contribute to aggressive tendencies.

Instrumental Aggression is a term that refers to a premeditated aggressive action that is carried out to achieve a specific goal. Anger is planned.

REDUCING AGGRESSION

Superordinate goals

Shared goals override differences among people that cannot be achieved without a joint effort.

Conciliatory acts

Researchers have found that reciprocal conciliatory acts can begin the process of reducing tensions between hostile groups. Researchers have found that reciprocal conciliatory acts can begin the process of reducing tensions between hostile groups. Diplomats often use reciprocal acts to begin peace talks. For example, negotiations between Israel and Arab nations have often started with an exchange of prisoners.

Communication

Communication does not guarantee a reduction in tensions. The use of skilled third-party mediators, such as marriage counselors, labor mediators, and diplomats can help hostile parties air their differences and begin the process of establishing cooperative relations.

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Please watch: **AGGRESSION V. ALTRUISM**

INTERPERSONAL ATTRACTION

Attraction refers to positive feelings toward another person.

FACTORS THAT PROMOTE ATTRACTION

Physical attractiveness

Research findings consistently indicate that physical attractiveness is one of the most important factors in explaining why people are initially attracted to others. Research findings suggest that men place greater value on physical attractiveness and youthfulness, whereas women place greater value on maturity, financial resources, and ambition. Evolutionary psychologists explain these findings by pointing out that men associate beauty and youth with fertility while women associate financial resources and maturity with responsibility and the ability to be a good father.

According to the matching hypothesis, two members of a romantic pair are most likely to be judged by others as similar in physical attractiveness.

Proximity

Proximity means nearness. The principle of proximity states that people make more friends among those who live and work nearby. Proximity promotes familiarity. Familiar people seem safe and approachable while unfamiliar people seem dangerous and threatening. According to the mere exposure effect, repeated exposure to people or products increases the likelihood that we will be attracted to them. Advertisers and politicians use this principle when they regularly repeat the same sales and campaign ads. Repeated exposure to a negative stimulus can decrease attraction.

Similarity

Research findings consistently indicate that we are most likely to be attracted to people who share our interests, values, and experiences. The similarity is a major factor in promoting long-term relationships.

ROMANTIC LOVE VERSUS COMPANIONATE LOVE

Romantic love is based upon intense feelings of attraction to another person. Typically fades after 6 to 30 months.

Companionate love is based upon strong feelings of admiration, respect, and commitment. Strengthened by mutual sharing of decisions and the self-disclosure of intimate details about personal feelings and experiences.

Test Tip

Attraction and aggression typically are covered at the end of social psychology chapters. While students often skim over these topics, AP Psychology test writers do not. Test questions typically focus on the similarity principle as a key to explaining attraction and the frustration-aggression hypothesis as a key to explaining aggression. In addition, be sure you know that superordinate goals can be an effective way to reduce tension and conflict.

Test Tip

I can identify important figures in social psychology (e.g., Solomon Asch, Leon Festinger, Stanley Milgram, Philip Zimbardo).

Famous Social Psychology Experiments

Experimenter	Topic	Major Finding
LaPiere	Attitudes	Attitudes don't always predict behavior; establishments that served a Chinese couple later reported they would refuse such a couple service.
Festinger and Carlsmith	Cognitive dissonance	Changing one's behavior can lead to a change in attitudes; people who described a boring task as interesting for $1 in compensation later reported liking the task more than people who were paid $20.
Rosenthal and Jacobson	Self-fulfilling prophecy	One person's attitudes can elicit a change in another person's behavior; teachers' positive expectations led to increases in students' IQ scores.
Sherif	Superordinate goals	Intergroup prejudice can be reduced through working toward superordinate goals; campers in unfriendly, competing groups came to have more positive feelings about one another after working together to solve several camp-wide problems.
Darley and Latane	Bystander effect	The more people that witness an emergency, the less likely any one person is to help; in one study, college students who thought they were the only person to overhear a peer have a seizure were more likely to help than students who thought others heard the seizure, too.
Asch	Conformity	People are loathe to contradict the opinions of a group; 70% of people reported at least one obviously incorrect answer.
Milgram	Obedience	People tend to obey authority figures; 60% of participants thought they delivered the maximum possible level of shock.
Zimbardo	Roles, deindividuation	Roles are powerful and can lead to deindividuation; college students role-playing prisoners and guards acted in surprisingly negative and hostile ways.

Over-learning

JOHN GABRIELI M.I.T. LECTURE 22: SOCIAL PSYCHOLOGY 1

JOHN GABRIELI M.I.T LECTURE 23: SOCIAL PSYCHOLOGY 2

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