

Lesson 1: Introduction to Psychology

WHAT IS PSYCHOLOGY?

PSYCHOLOGY is defined as the scientific study of behavior and mental processes. It involves understanding how individuals think, feel, and act, both individually and in social contexts. The field of psychology encompasses various sub-disciplines, each focusing on different aspects of human experience and functioning.

THE SCOPE OF PSYCHOLOGY

- 1. Neuroscience** - Neuroscience in psychology explores how the brain and nervous system influence behavior, thoughts, and emotions. It integrates knowledge from biology, psychology, and medicine to understand how neural processes underlie cognitive functions, mental health disorders, and various aspects of human experience.
- 2. Developmental Psychology** - Studies the psychological growth and changes that occur throughout a person's life, from infancy through old age. It includes cognitive, emotional, and social development.
- 3. Cognitive Psychology** - Investigates mental processes such as perception, memory, problem-solving, and decision-making. It looks at how we acquire, process, and store information.
- 4. Social Psychology** - Explores how individuals are affected by and interact with others. It includes topics like social influence, group dynamics, prejudice, and interpersonal relationships.
- 5. Clinical Psychology** - Concerned with diagnosing and treating mental health disorders. This area covers various therapeutic approaches and techniques for managing psychological issues.
- 6. Counseling Psychology** - Similar to clinical psychology, but typically focuses on providing guidance and support to people facing everyday life challenges and personal development.
- 7. Health Psychology** - Examines how biological, psychological, and social factors affect health and illness. It includes the study of stress, coping mechanisms, and health behavior change.

8. Industrial/Organizational Psychology - Applies psychological principles to workplace environments. It deals with issues such as employee motivation, performance, selection, and organizational development.

9. Educational Psychology - Focuses on how people learn and the most effective teaching methods. It explores topics like cognitive development, learning theories, and instructional strategies.

10. Environmental Psychology - Studies the interaction between people and their physical surroundings. It looks at how the environment impacts behavior and how individuals can affect their surroundings.

11. Forensic Psychology - Applies psychological principles to legal issues. It involves working with legal professionals on issues such as criminal behavior, competency evaluations, and witness testimony.

12. Community Psychology - Focuses on understanding individuals within their social contexts and communities. It emphasizes social change, community development, and the promotion of well-being.

13. Sports Psychology - Studies the psychological aspects of sports and exercise. It includes performance enhancement, motivation, and the impact of sports on mental health.

14. Comparative Psychology - Examines the behavior and mental processes of non-human animals to understand the evolutionary and developmental aspects of behavior.

15. Cross-Cultural Psychology - Investigates how cultural factors influence psychological processes and how psychological principles can be applied across different cultures.

THE HISTORICAL ORIGINS OF PSYCHOLOGY

ANCIENT PHILOSOPHIES:

ANCIENT GREECE - Philosophers like Socrates, Plato, and Aristotle explored questions about the mind, behavior, and human nature. Socrates focused on introspection and self-knowledge, Plato discussed the theory of forms and the nature of the soul, while Aristotle emphasized empirical observation and categorized different aspects of human experience.

ANCIENT INDIA AND CHINA - Early Indian philosophies, such as those found in the Vedas and Upanishads, explored aspects of consciousness and the self. Chinese thinkers like Confucius and Laozi discussed moral and ethical behavior, which also touched upon psychological concepts

MEDIEVAL & RENAISSANCE:

MEDIEVAL - During the Middle Ages, the focus was largely on reconciling ancient Greek philosophy with religious doctrine. Figures like Thomas Aquinas integrated Aristotelian ideas with Christian theology, contributing to the understanding of human nature and cognition from a theological perspective.

RENAISSANCE - The Renaissance era saw a revival of interest in the classical ideas of Greece and Rome, with a growing emphasis on humanism and empirical observation. Thinkers like René Descartes (with his emphasis on dualism and rationalism) and John Locke (with his theories on empiricism and the mind as a "tabula rasa" or blank slate) made significant contributions to psychological thought.

RATIONALISM

Rationalism is the philosophical view that reason and intellect are the primary sources of knowledge, rather than sensory experience. Rationalists believe that certain truths are known a priori (independently of experience) through intellectual insight and logical deduction.

EMPIRICISM

Empiricism is the philosophical view that knowledge comes primarily from sensory experience and observation. Empiricists argue that all concepts and knowledge are derived from experience, and that our understanding of the world is grounded in what we perceive through our senses.

STRUCTURALISM

- Founded by Wilhelm Wundt and further developed by Edward Titchener, **structuralism aimed to break down mental processes into their most basic components**. This approach used introspection to explore the structure of the mind.

- Structuralism's **focus on mental processes and consciousness** provided a foundation for understanding cognitive functions, although its methods were later criticized for being subjective and unreliable.

PRAGMATISM

- Pragmatism **emphasizes the practical application of ideas and the role of experience in shaping beliefs and knowledge**.
- Pragmatists evaluate the truth of ideas based on their practical implications and their ability to solve problems or improve experiences.

FUNCTIONALISM

- Functionalism is a psychological perspective that emerged in the late 19th and early 20th centuries, primarily influenced by William James and John Dewey. Functionalism **focuses on understanding the functions and purposes of mental processes and behaviors rather than their structure**.
- Functionalism emphasizes how mental processes and behaviors serve adaptive purposes and contribute to an individual's ability to function effectively in their environment.
- Like pragmatism, functionalism is concerned with the practical aspects of mental processes and how they help individuals adapt to their surroundings and solve problems.
- **Holistic Approach:** Functionalists are interested in how different mental processes work together to achieve practical goals, rather than just examining isolated component

NATURE VS. NURTURE

NATURE - Refers to the genetic and biological predispositions that influence behavior and mental processes. Early proponents of nature include Charles Darwin, whose theory of evolution emphasized the role of inherited traits.

NURTURE - Refers to the influence of environmental factors such as upbringing, culture, and life experiences. This perspective suggests that behavior is shaped by learning and socialization

THE BEGINNINGS OF SCIENTIFIC PSYCHOLOGY

WILHELM WUNDT

Often considered the founder of experimental psychology, Wundt established the first psychology laboratory at the University of Leipzig in 1879. He used

experimental methods to study consciousness, employing introspection to analyze the structure of mental experiences.

WILLIAM JAMES

An American philosopher and psychologist, James is known for his work in functionalism. He focused on the purposes of mental processes and their role in helping individuals adapt to their environment. His book, "The Principles of Psychology" (1890), was influential in shaping the study of psychology.

STRUCTURALISM VS. FUNCTIONALISM

STRUCTURALISM - Founded by Wilhelm Wundt and later advanced by his student Edward Titchener, structuralism aimed to break down mental processes into their most basic components. It used introspection to explore the structure of consciousness, focusing on sensations, images, and feelings.

FUNCTIONALISM - Developed by William James and influenced by Charles Darwin's theory of evolution, functionalism focused on the functions and purposes of the mind and behavior in adapting to the environment. It emphasized the practical applications of psychological principles and how mental processes help individuals adapt to their surroundings.

BEHAVIORISM

JOHN B. WATSON

Often considered the founder of behaviorism, Watson argued that psychology should focus on observable behavior rather than internal mental states. He believed that behavior could be studied and modified through conditioning.

B.F. SKINNER

A prominent behaviorist, Skinner extended Watson's work by developing the theory of operant conditioning. He demonstrated how behavior could be shaped by reinforcement and punishment, influencing the field of psychology, particularly in understanding learning and behavior modification

COGNITIVE REVOLUTION

JEAN PIAGET

Known for his work on cognitive development in children, Piaget's stages of development (sensorimotor, preoperational, concrete operational, and formal operational) had a profound impact on developmental psychology.

ULRIC NEISSER

Often called the "father of cognitive psychology," Neisser's book "Cognitive Psychology" (1967) helped define and popularize the field. His work focused on perception, memory, and cognitive processes

HUMANISTIC PSYCHOLOGY

ABRAHAM MASLOW

Known for his hierarchy of needs, Maslow's theory proposes that individuals are motivated by a series of needs, culminating in self-actualization, which is the realization of one's potential.

CARL ROGERS

Developed client-centered therapy (also known as personcentered therapy), emphasizing the importance of the therapeutic relationship and the client's ability to self-heal and grow

SOCIAL & CULTURAL PSYCHOLOGY

LEON FESTINGER

Developed the theory of cognitive dissonance, which explores how people strive for internal consistency and how inconsistency between beliefs and actions can lead to attitude change.

LEV VYGOTSKY

Lev Vygotsky's sociocultural theory emphasized the role of social interaction and culture in cognitive development, introducing concepts such as the zone of proximal development

GESTALT PSYCHOLOGY



Figure 1.4 A Gestalt Image. When we look at the three angles of an equilateral triangle, we see a single large triangle rather than three small angles.

- Max Wertheimer, Kurt Koffka, and Wolfgang Köhler: Founders of Gestalt psychology, this approach emphasized the holistic nature of perception and cognition.

- Gestalt psychologists argued that people perceive objects and scenes as whole units rather than a collection of individual parts.

- Key principles include figure-ground organization, proximity, similarity, and closure.

- Gestalt psychology had a significant impact on cognitive psychology and the understanding of perception, problem-solving, and learning.

-The whole is different from the sum of its parts, because the whole depends on the relationships among the parts.

- For example, when we look at Figure 1.4, we see it as a single large triangle – as a single form or Gestalt – rather than as three small angles

POSITIVE PSYCHOLOGY

Founded by Martin Seligman in the late 1990s, positive psychology focuses on the study of positive emotions, strengths, and factors that contribute to human flourishing and well-being.

-Flow: Introduced by Mihaly Csikszentmihalyi, the concept of flow describes a state of deep engagement and enjoyment in activities that match one's skills and challenge levels.

- Well-being: The exploration of what constitutes a fulfilling and meaningful life, including concepts such as happiness, resilience, and life satisfaction

PSYCHOANALYSIS

The founder of psychoanalysis, Freud developed a theory that focused on the unconscious mind and its influence on behavior. He introduced concepts such as

the id, ego, and superego, as well as defense mechanisms, psychosexual stages, and dream analysis. Freud's work laid the foundation for many therapeutic practices and had a profound impact on the understanding of personality and psychopathology.

COGNITIVE BEHAVIORAL THERAPY

- Developed from the integration of cognitive and behavioral approaches, CBT focuses on changing maladaptive thought patterns and behaviors to improve emotional regulation and coping strategies.

- **Aaron Beck:** Developed cognitive therapy, which later evolved into CBT. Beck's work emphasized the role of cognitive distortions in depression and other mental health issues.

- **Albert Ellis:** Developed Rational Emotive Behavior Therapy (REBT), which focuses on changing irrational beliefs to improve emotional well-being.

THE BIOLOGICAL PERSPECTIVE

- Focuses on the physiological and genetic bases of behavior. This perspective examines how brain structures, neurotransmitters, hormones, and genetic influences affect mental processes and behavior.

- Applications: Psychopharmacology, neuropsychology, behavioral genetic

THE COGNITIVE PERSPECTIVE

- Focuses on internal mental processes such as perception, memory, and problem-solving. It examines how people understand, diagnose, and solve problems

- Information processing, cognitive development (Piaget), cognitive biases.

- Applications: Cognitive therapy, educational psychology, human-computer interaction.

THE PSYCHOANALYTIC PERSPECTIVE

• Originated by Sigmund Freud, this perspective emphasizes unconscious processes and childhood experiences in shaping behavior and personality. It focuses on internal conflicts and the influence of early relationships.

• Id, ego, superego, defense mechanisms, psychosexual stages.

- **Applications:** Psychoanalysis, psychodynamic therapy, understanding personality development

THE SUBJECTIVIST PERSPECTIVE

- The subjectivist perspective contends that human behavior is a function of the perceived world, not the objective world. Like the cognitive approach, the subjectivist perspective drew from the Gestalt tradition and reacted against the narrowness of behaviorism.'

- Stresses the subjective experience and interpretation of individuals. It highlights the importance of personal perceptions and meanings in understanding behavior and mental processes.

- **Key Concepts:** Phenomenology, personal meaning, self-actualization (Rogers, Maslow).

• **Applications:** Humanistic therapy, existential psychology, qualitative research methods

RESEARCH

HOW PSYCHOLOGICAL RESEARCH IS DONE

GENERATING HYPOTHESES

The research process often begins with generating hypotheses based on observations, theories, or prior research findings. A hypothesis is a specific, testable prediction about the relationship between variables.

Sources of Hypotheses:

- *Theoretical Frameworks:* Derived from established theories in psychology.
- Previous Research: Building on findings from earlier studies.
- *Everyday Observations:* Noting patterns or anomalies in everyday life.
- *Formulation:* Hypotheses should be clear, concise, and falsifiable. They are usually framed in terms of the expected relationship between independent (manipulated) and dependent (measured) variables.

EXPERIMENTS

Experiments are designed to test hypotheses by manipulating one or more independent variables to observe the effect on dependent variables, while controlling for extraneous variables.

- Key Components:

- *Controlled Conditions:* To establish causality, experiments are conducted under controlled conditions to isolate the effect of the independent variable.

- *Random Assignment:* Participants are randomly assigned to different conditions to reduce bias and ensure that differences are due to the manipulation rather than preexisting differences.

- Variables:

- *Independent Variable (IV):* The variable that is manipulated.

- *Dependent Variable (DV):* The variable that is measured and affected by the IV.

- Types of Experiments:

- *Laboratory Experiments:* Conducted in a controlled environment where variables can be precisely managed.

- *Field Experiments:* Conducted in natural settings to enhance ecological validity

- *Natural Experiments:* Utilize naturally occurring variations in independent variables, often when manipulation is impractical or unethical.

CORRELATION

Correlational research examines the relationship between two or more variables to determine whether they are associated, without manipulating any variables

Key Concepts:

- *Correlation Coefficient:* A statistical measure (r) that indicates the strength and direction of a relationship between variables. Ranges from -1 to +1.
- *Positive Correlation:* As one variable increases, the other also increases.
- *Negative Correlation:* As one variable increases, the other decreases.
- *Zero Correlation:* No discernible relationship between the variables.

- *Limitations:* Correlation does not imply causation. It only indicates that variables are related, but not the direction or causation of that relationship

OBSERVATION

Observational research involves systematically watching, recording, and analyzing behavior or events in their natural context without manipulating variables.

Types of Observation:

- *Naturalistic Observation:* Observing subjects in their natural environment without interference.
- *Participant Observation:* The researcher becomes part of the group being studied to gain a deeper understanding of their behavior.
- *Structured Observation:* The researcher sets up specific conditions or situations to observe how participants behave under these conditions.

Advantages:

- *Ecological Validity:* Provides insights into behavior in real-world settings.
- *Rich Data:* Can yield detailed descriptions of behavior.

Limitations:

- *Observer Bias:* The researcher's expectations or preferences may influence their observations.
- *Lack of Control:* Difficult to control extraneous variables, making it hard to determine causality

LITERATURE REVIEWS

A literature review is a comprehensive summary and synthesis of existing research on a particular topic. It helps researchers understand what is already known, identify gaps in the knowledge, and formulate new research questions or hypotheses.

Purpose:

- *Contextualization:* Provides context for new research by summarizing current knowledge and theories.
- *Gap Identification:* Identifies gaps in the existing literature that new research can address.
- *Methodological Insights:* Reveals what methods and approaches have been used, guiding the design of new studies.
- *Theory Building:* Assists in developing or refining theoretical frameworks.

Process:

- *Search:* Conduct a thorough search of academic databases, journals, and other sources to gather relevant literature.
- *Selection:* Choose studies that are relevant and high-quality based on criteria such as relevance, methodological rigor, and recency.
- *Analysis:* Critically analyze and synthesize findings from selected studies, noting patterns, contradictions, and trends.
- *Organization:* Organize the review into coherent sections, often by theme, methodology, or chronological order.
- *Reporting:* Present the findings in a clear and systematic way, summarizing major insights and implications for future research.

Types of Literature Reviews:

- *Systematic Review:* A rigorous and methodical review that uses explicit criteria for selecting studies and evaluating evidence.
- *Meta-Analysis:* A statistical technique that combines the results of multiple studies to arrive at a more comprehensive understanding.
- *Narrative Review:* A more general overview that discusses the literature in a less structured manner

ETHICS OF PSYCHOLOGICAL RESEARCH

Ethical considerations in psychological research ensure the protection and respect of participants and the integrity of the research process. Ethical guidelines are designed to prevent harm and ensure that research is conducted responsibly.

Key Principles:

- **Informed Consent:** Participants must be fully informed about the nature of the research, including any potential risks, and give their voluntary consent to participate.
- **Confidentiality:** Researchers must protect participants' privacy by keeping their data confidential and secure.
- **Debriefing:** Participants should be provided with information about the study's purpose and procedures after participation, especially if they were not fully informed beforehand. Key Principles:
- **Beneficence:** Researchers must aim to maximize benefits and minimize harm to participants.

- **Integrity:** Researchers should conduct their work honestly and transparently, avoiding fabrication, falsification, and plagiarism.

- **Respect for Persons:** This involves recognizing and honoring the autonomy and dignity of participants, including those who may be vulnerable.

Regulatory Bodies and Guidelines:

- **Institutional Review Boards (IRBs):** IRBs review research proposals to ensure that ethical standards are met before the research begins.

- **Ethical Guidelines:** Many countries and professional organizations, such as the American Psychological Association (APA) and the British Psychological Society (BPS), provide ethical guidelines for research.

- **Legal Requirements:** Researchers must also comply with relevant laws and regulations, which may vary by jurisdiction.

Ethical Issues:

- **Deception:** Deceptive practices must be justified by the study's potential value and must not cause harm. Participants should be debriefed as soon as possible.

- **Vulnerable Populations:** Special considerations are required when working with groups such as children, prisoners, or individuals with cognitive impairments.

- **Dual Roles:** Researchers must avoid situations where their role as a researcher conflicts with other roles (e.g., therapist) that could affect the research process or outcomes

Lesson 2: BIOLOGICAL FOUNDATIONS OF PSYCHOLOGY

WHAT IS THE ROLE OF THE BRAIN?

The brain is a very complex organ. It controls every process involved in regulating the human body.

It controls memory, thoughts, emotions, motor skills, breathing, body temperature, touch and many more bodily processes



PARTS OF THE BRAIN

1. Frontal lobe
2. Parietal lobe
3. Occipital lobe
4. Temporal lobe
5. Cerebellum

1. FRONTAL LOBE

The frontal lobe controls important cognitive skills such as judgement, speech, learning, reasoning, problem solving and memory.

Each side of the frontal lobe controls voluntary muscle movements on the opposite side of the body.

2. PARIETAL LOBE

The parietal lobe organizes sensory information from various body parts. It processes sensations such as touch, temperature and pain which gives us self-perception,

The parietal lobe also allows us to make controlled precise movements such as writing. It gives us location awareness, so we understand where items are located in relation to ourselves and to categorize linked items e.g. apples and bananas as items of fruit.

3. OCCIPITAL LOBE

The occipital lobe helps us recognize and understand what we see, by processing visual information from our eyes.

The occipital lobe helps use identify shapes. colors, movement, places and faces. It also provides us with depth perception and understanding 3D space.

4. TEMPORAL LOBE

The temporal lobe is linked with memory and recalling past experiences. It also helps us understand the meaning of words and linking words to objects.

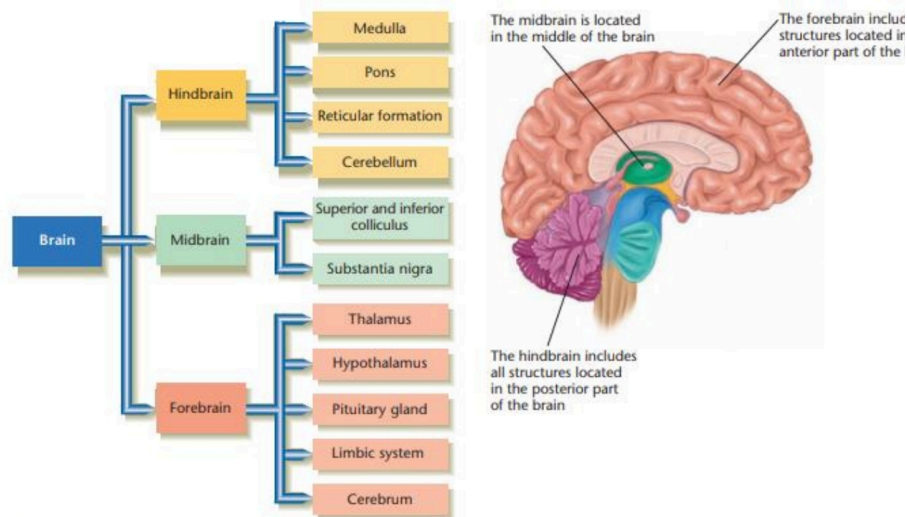
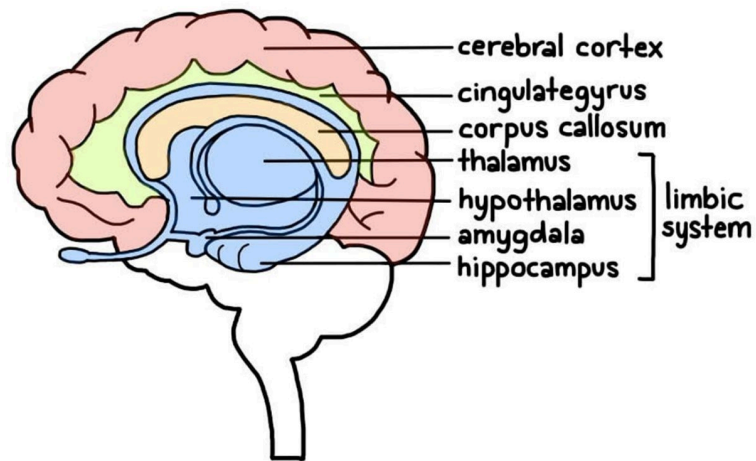
The temporal lobe is key in processing emotions and how we feel about situations. It is essential in alerting us when we feel in danger. It also plays a role in processing sensory signals like sight and sound.

5. CEREBELLUM

The cerebellum coordinates movement and helps us maintain balance. It plays a key role in muscle actions which are essential for any movement from picking something up from the Floor to walking, playing sports and learning to play a musical instrument.

The cerebellum controls eye movement e.g. when you are watching tv or tracking an object with your eyes.

FOREBRAIN STRUCTURES



Thalamus: is a central hub in the brain that facilitates the relay and processing of sensory and motor information, regulates consciousness, and integrates various types of information.

Hypothalamus: is essential for maintaining homeostasis by regulating a wide range of physiological processes, including temperature, hunger, fluid balance, and hormonal control.

Pituitary gland is essential for regulating growth, metabolism, reproductive functions, and fluid balance through its hormone production and release.

Amygdala is crucial for processing and regulating emotions, influencing behavior, and responding to stress.

Rectangular Formation influences on fundamental brain functions underscores its importance in maintaining alertness, coordinating movement, and regulating vital bodily functions.

Medulla regulates heart rate and blood pressure through its control of the autonomic nervous system. It contains the cardiac center, which adjusts the force and rate of heartbeats, and the vasomotor center.

Cerebellum is essential for the coordination of fine motor movements.

Pons contains pathways that transmit signals between the cerebrum and the cerebellum.

Hippocampus It helps convert short-term memories into long-term memories.

Midbrain is integral to sensory processing, motor control, arousal regulation, and pain modulation.

Cerebrum is central to a wide array of cognitive, sensory, and motor functions.

Corpus callosum: is essential for integrating and coordinating information between the two cerebral hemispheres, contributing to unified perception, motor coordination, and complex cognitive functions.

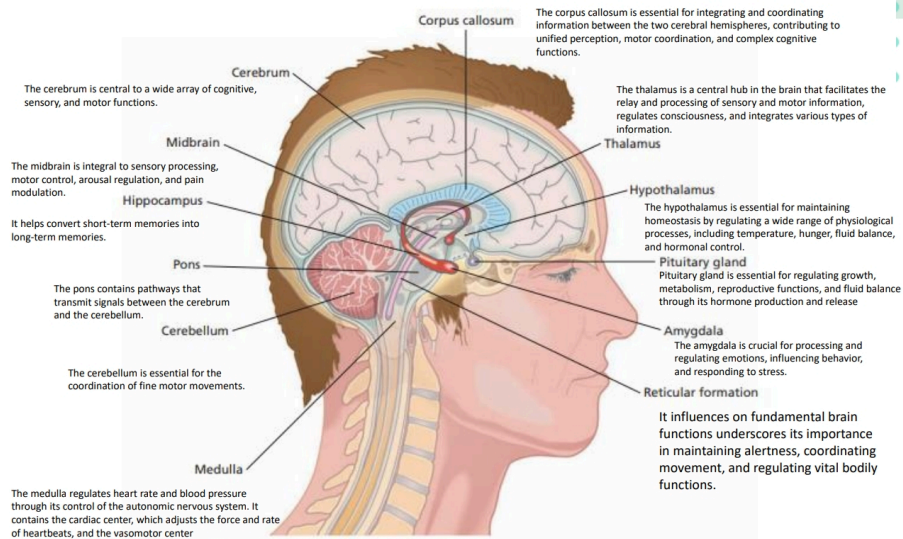
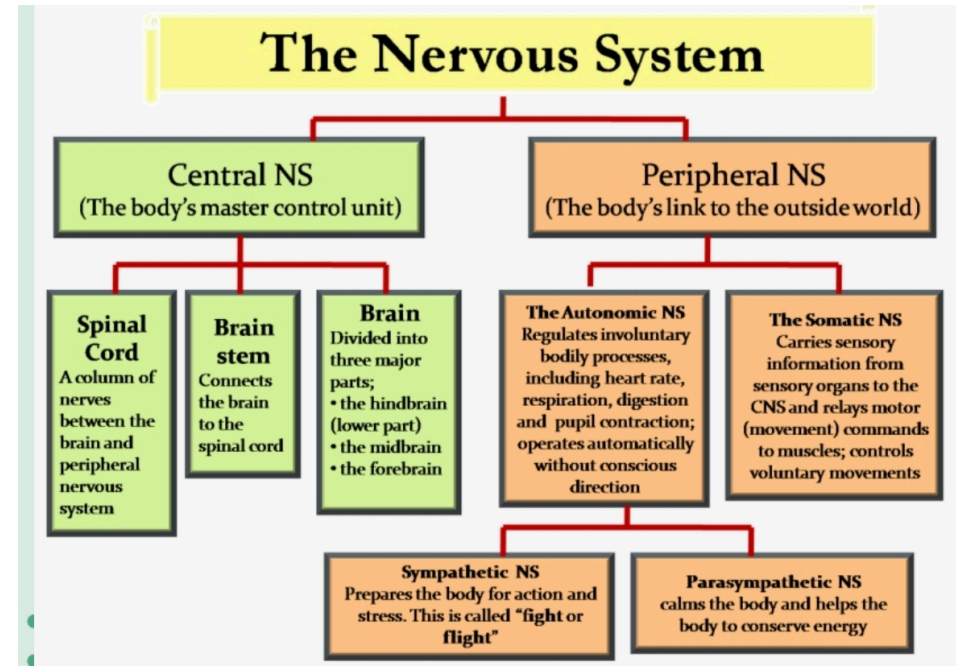


Figure 2.11 The main structures of the human brain.

THE NERVOUS SYSTEM

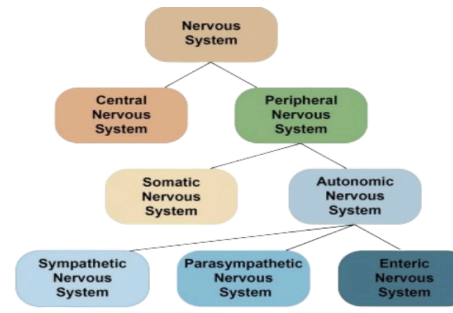


Central Nervous System (CNS)

integrates and coordinates activities throughout the body. It allows us to experience thoughts, emotions, sensations, and coordinated movements. The brain and spinal cord work together to ensure our overall well-being and functioning.

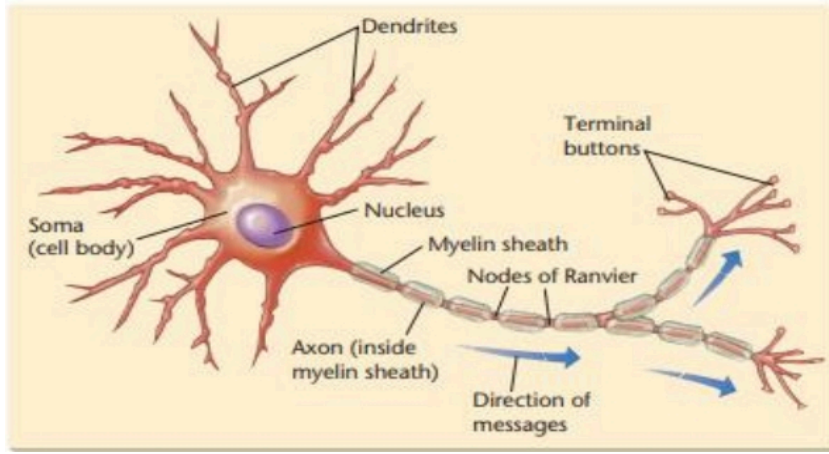
Peripheral Nervous System (PNS)

is the part of your nervous system that lies outside your brain and spinal cord. It plays key role in both sending information from different areas of your body back to your brain, as well as carrying out commands from your brain to various parts of your body.



Neurons: the building blocks of the Nervous System

- Neurons are the primary cells of the nervous system responsible for transmitting information throughout the body.
- They are fundamental to both brain function and overall nervous system activity.



Structure of Neurons:

- **Cell Body (Soma):** Contains the nucleus and organelles, responsible for metabolic activities.
- **Dendrites:** Branch-like structures that receive signals from other neurons and transmit them to the cell body.
- **Axon:** A long, thin extension that carries electrical impulses away from the cell body to other neurons or muscles.
- **Axon Terminals:** The endpoints of the axon where neurotransmitters are released to communicate with other cells.

ACTION POTENTIAL

An **action potential** is an electrical signal that travels along the axon of a neuron. It is a rapid change in the membrane potential that propagates down the axon.

Here's how it works:

Resting Potential: The neuron is at rest with a stable, negative internal charge compared to the outside, typically around -70 mV. This is maintained by the sodium-potassium pump which actively transports sodium ions out and potassium ions into the cell.

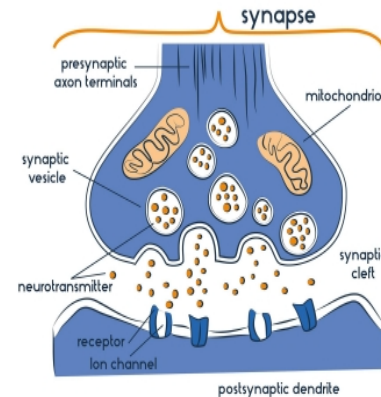
Depolarization: When a neuron receives a stimulus, voltage-gated sodium channels open, allowing sodium ions to flow into the cell. This influx of positive ions causes the membrane potential to become less negative.

Repolarization: After a brief period, sodium channels close and voltage-gated potassium channels open. Potassium ions flow out of the cell, restoring the negative internal charge.

Hyperpolarization: Sometimes the membrane potential becomes more negative than the resting potential before stabilizing.

Refractory Period: Following an action potential, the neuron temporarily becomes less responsive to stimuli. This period ensures that action potentials only travel in one direction along the axon.

SYNAPTIC TRANSMISSION



Synaptic Transmission: Synaptic transmission is the process through which neurons communicate with each other at synapses, which are junctions between neurons.

Arrival of Action Potential: When an action potential reaches the axon terminal, it triggers the opening of voltage-gated calcium channels.

Neurotransmitter Release: Calcium influx causes synaptic vesicles filled with neurotransmitters to fuse with the presynaptic membrane and release their contents into the synaptic cleft (the gap between neurons).

Binding and Response: Neurotransmitters cross the synaptic cleft and bind to receptors on the postsynaptic neuron. This binding can lead to changes in the postsynaptic cell's membrane potential, potentially generating a new action potential.

Neurotransmitter Removal: Neurotransmitters are either broken down by enzymes or reabsorbed by the presynaptic neuron through reuptake.

NEURAL CODING

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Example: Memory Formation

Scenario: Studying for an exam and learning new information involves synaptic transmission and neural coding.

Synaptic Transmission: When you learn something new, neurons in the hippocampus (a brain region crucial for memory) communicate through synapses. The synaptic transmission involves the release of neurotransmitters like glutamate, which strengthens synaptic connections.

Neural Coding: As you review the material, the information is encoded in your brain through patterns of neuronal firing. For example, repeated exposure to the material might lead to long-term potentiation (LTP), where the efficiency of synaptic transmission increases, helping to solidify the memory.

Example: Sensory Perception

Scenario: Watching a sunset involves complex neural coding.

Synaptic Transmission: Light photons hitting the retina are converted into electrical signals by photoreceptor cells. These signals are transmitted to the brain via the optic nerve, where they are processed in the visual cortex.

Neural Coding: The visual cortex decodes the information about color, brightness, and spatial orientation, allowing you to perceive and appreciate the sunset's beauty. This involves different patterns of neural activity to represent various aspects of the visual scene.

ENDOCRINE SYSTEM

1. Pituitary Gland	6. Adrenal Glands
2. Hypothalamus	7. Gonads
3. Thyroid Gland	8. Pineal Gland

4. Parathyroid Glands	9. Thymus
5. Pancreas	10. Placenta (during pregnancy)

The endocrine system consists of several key glands and organs that produce and secrete hormones directly into the bloodstream. Each part of the endocrine system plays a specific role in regulating various bodily functions.

1. Pituitary Gland

Often called the "*master gland*" because it regulates other endocrine glands. It produces hormones such as growth hormone, thyroid-stimulating hormone, adrenocorticotropic hormone, and reproductive hormones.

2. Hypothalamus

Acts as a control center for the endocrine system by producing hormones that regulate the pituitary gland. It produces releasing and inhibiting hormones that control the release of pituitary hormones.

3. Thyroid Gland

Produces thyroid hormones (thyroxine and triiodothyronine) that regulate metabolism, energy levels, and growth. It also produces calcitonin, which helps regulate calcium levels in the blood.

4. Parathyroid Glands

Produce parathyroid hormone (PTH), which regulates calcium levels in the blood by increasing calcium release from bones and absorption in the intestines.

5. Pancreas

Has both endocrine and exocrine functions. The endocrine part includes:

- **Islets of Langerhans:** Produce insulin and glucagon to regulate blood sugar levels.

6. Adrenal Glands

Adrenal Cortex: Produces corticosteroids (like cortisol) that regulate metabolism, immune response, and stress.

Adrenal Medulla: Produces catecholamines (like adrenaline and norepinephrine) that prepare the body for "fight or flight" responses.

7. Gonads

Ovaries: Produce estrogen and progesterone, which regulate the menstrual cycle, reproductive function, and secondary sexual characteristics.

Testes: Produce testosterone, which regulates sperm production, libido, and secondary sexual characteristics.

8. Pineal Gland

Produces melatonin, which regulates sleep -wake cycles and seasonal biological rhythms.

9. Thymus

Produces thymosin and other hormones that are crucial for the development and maturation of T -cells, which are essential for immune function.

10. Placenta (during pregnancy)

Produces hormones like human chorionic gonadotropin (hCG), progesterone, and estrogen, which support pregnancy and fetal development.

NEUROTRANSMITTERS

THE CHEMICAL MESSENGERS OF THE BODY

1. Acetylcholine (ACh)

Role: Acetylcholine is involved in muscle movement and memory formation.

Function: It is crucial at neuromuscular junctions where it stimulates muscle contraction. In the brain, it plays a role in attention and memory. For instance, Alzheimer's disease is associated with a deficit of acetylcholine

2. Glutamate

Role: Glutamate is the primary excitatory neurotransmitter in the brain. **Function:** It is essential for synaptic plasticity, learning, and memory. High levels of glutamate can lead to excitotoxicity, which is associated with neurodegenerative diseases such as Alzheimer's disease and multiple sclerosis.

3. Dopamine

Role: Dopamine is critical for reward, pleasure, and motor control. **Function:** It is involved in the brain's reward system, influencing pleasure and reinforcement. Dopamine also regulates motor control and coordination. Disorders such as Parkinson's disease involve a loss of dopamine-producing neurons, leading to tremors and motor difficulties. Conversely, excessive dopamine activity is associated with schizophrenia.

4. Serotonin

Role: Serotonin affects mood, sleep, and appetite.

Function: It plays a key role in regulating mood, with deficiencies linked to depression and anxiety. Serotonin also influences sleep patterns and appetite control. Medications like selective serotonin reuptake inhibitors (SSRIs) are used to treat depression by increasing serotonin levels in the brain.

5. Norepinephrine (NE)

Role: Norepinephrine is involved in arousal, alertness, and the stress response.

Function: It helps regulate the "fight or flight" response by increasing heart rate and blood flow to muscles. It also plays a role in mood regulation and is implicated in anxiety and depression.

6. Epinephrine (Adrenaline)

Role: A hormone and neurotransmitter produced by the adrenal glands.

Function: Triggers the "fight-or-flight" response by increasing heart rate, blood flow to muscles, and glucose release, thereby preparing the body for physical exertion.

7. Endorphins

Role: A diverse group of small protein-like molecules used by neurons to communicate.

Function: Modulate various brain functions including pain perception, stress response, and emotional regulation; examples include endorphins (pain relief) and substance P (pain signaling).

8. GABA (Gamma- Aminobutyric Acid)

Role: GABA is the primary inhibitory neurotransmitter in the brain. **Function:** It reduces neuronal excitability and helps regulate anxiety, muscle tone, and overall brain excitability. GABA's inhibitory effects are critical for maintaining a balance with excitatory neurotransmitters. Dysfunction in GABAergic systems can contribute to anxiety disorders, epilepsy, and insomnia.

Evolution of Behavior

The evolution of behavior examines how behavioral traits have developed over time through natural selection. Behaviors that increase an organism's chances of survival and reproduction are more likely to be passed on to future generations.

For instance, parental care in birds enhances the survival of offspring, and this trait has evolved because it benefits both the offspring and the parents' reproductive success. Behavioral evolution also includes the development of social structures and communication methods that improve group survival and cooperation.

Chromosomes & Genes

Chromosomes are structures within cells that contain DNA, the molecule that carries genetic information. Humans have 23 pairs of chromosomes, with each chromosome containing numerous genes. Genes are specific sequences of DNA that code for proteins and influence various traits and functions. Mutations and variations in genes can lead to differences in behavior, as they can affect brain function and development. For example, genes associated with neurotransmitter systems can influence mood and behavioral responses.

Genetic Studies of Behavior

Genetic studies of behavior explore how genetic variations contribute to behavioral traits. Twin studies, adoption studies, and genome-wide association studies (GWAS) are commonly used methods. These studies have shown that many aspects of behavior, including intelligence, aggression, and social tendencies, have genetic components. However, behavior is also influenced by environmental factors, leading to an interaction between genes and environment. Understanding these genetic influences helps in identifying the biological basis of behavior and potential interventions for behavioral disorders.

Lesson 3: PSYCHOSOCIAL DEVELOPMENT

NATURE

Charles Darwin's theory of evolution (1859), which emphasizes the biological basis of human development, led many theorists to emphasize **heredity**.

NURTURE

According to Locke, **all knowledge comes to us through our senses**. It is provided entirely by experience; there is no built-in knowledge.

NATURE VS. NURTURE

Behaviorists like John B. Watson and B. F. Skinner argued that human **nature is completely malleable**:

Early training can turn a child into any kind of adult, regardless of his or her heredity. Watson stated this argument in its most extreme form.

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one at random and train him to be 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 race of his ancestors.

STAGES OF DEVELOPMENT

By Hurlock



The newborn's poor visual acuity makes the mothers face look fuzzy (left) rather than clear (right) even when viewed from close up

- | | |
|---------------|-------------|
| 1 Infancy | 4 Adulthood |
| 2 Childhood | 5 Old Age |
| 3 Adolescence | |



1. Vision

- Newborns have poor visual acuity, their ability to change focus is limited, and they are very nearsighted.

CAPACITIES OF THE NEWBORN

- The newborn's poor visual acuity makes the mothers face look fuzzy (left) rather than clear (right) even when viewed from close up.

- They are particularly attracted to areas of high contrast, such as the edges of an object. Instead of scanning the entire object, as an adult would, they keep looking at areas that have the most edges. They also prefer complex patterns over plain ones and patterns with curved lines over patterns with straight lines.



Figure 3.3 Normal versus scrambled faces. Infants as young as 3 months show a preference for a normally configured face and a face with the features scrambled. Such preferences may be present at birth. (From Bhatt, Bering, Hayden and Reed, 2005.)

2. Hearing

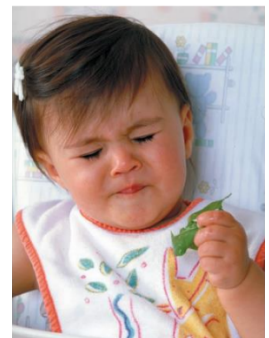


- Infants seem to learn particularly rapidly about the sounds made in human speech, and this learning may begin in the womb. Newborns show a preference for their mothers' voice over a stranger's, and even show a preference for stories their mothers read aloud in the last weeks of pregnancy over novel stories.

- Infants as young as six months are also able to discriminate between intonations of voice indicating approval and disapproval, and smile more in response to approval intonations over disapproval intonations, even when presented in a language different from their own (Fernald, 1993).

3. Taste & Smell

- Infants can discriminate between tastes shortly after birth. They prefer sweet-tasting liquids over liquids that are salty, bitter, sour, or bland. The characteristic response of the newborn to a sweet liquid is a relaxed expression resembling a slight smile, sometimes accompanied by lip-licking.



- A sour solution produces pursed lips and a wrinkled nose. In response to a bitter solution, the baby opens its mouth with the corners turned down and sticks out its tongue in what appears to be an expression of disgust.

- Newborns can also discriminate among odors. They turn their heads toward a sweet smell, and heart rate and respiration slow down; these are indicators of attention. Noxious odors, such as those of ammonia or rotten eggs, cause them to turn their heads away; their heart rate and respiration accelerate, indicating distress.



- There seems to be an innate preference for the odor of breast milk. In general, the ability to distinguish among smells has a clear adaptive value: It helps infants avoid noxious substances and thereby increases their chances of survival.

4. Learning & Memory

- A Study of Infant Memory. A study showed that 3-month-old infants could easily learn to move a mobile by pulling on a ribbon attached to their leg; the infants remembered this new behavior when tested in the same situation eight days later

- More startling is evidence that infants remember sensations they experienced before birth, while still in the mother's uterus. We noted earlier that newborn infants can distinguish the sound of the human voice from other sounds. They also prefer the human voice over other sounds.

- These preferences appear to stem from the infant's prenatal experience with sounds. For example, the mother's voice can also be heard in the uterus, which would appear to explain why a newborn infant prefers her voice over others.

COGNITIVE DEVELOPMENT IN CHILDHOOD

JEAN PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

- Partly as a result of his observations of his own children, Piaget became interested in the relationship between the child's naturally maturing abilities and his or her interactions with the environment. He saw the child as an active participant in this process, rather than as a passive recipient of biological development or external stimuli.

- He viewed children as 'inquiring scientists' who experiment with objects and events in their environment to see what will happen. ('What does it feel like to suck on the teddy bear's ear?' 'What happens if I push my dish off the edge of the table?') The results of these 'experiments' are used to construct **schemas** – **theories about how the physical and social worlds operate**. Upon encountering a novel object or event, the child attempts to **assimilate** it – **understand it in terms of a pre existing schema**.

- Piaget argued that if the new experience does not fit the existing schema, the child, like any good scientist, will engage in **accommodation**, **modifying a schema to fit new information**, thereby extending the child's theory of the world (Piaget & Inhelder, 1969).

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

1. Sensorimotor (birth–2 years)
2. Preoperational (2–7 years)
3. Concrete operational (7–11 years)
4. Formal operational (11 years and up)

1. Sensorimotor (birth–2 years)

- Piaget designated the first two years of life as the sensorimotor stage, when infants are busy discovering the relationships between their actions and the consequences of those actions.

- Differentiates self from objects Recognizes self as agent of action and begins to act intentionally; for example, pulls a string to set a mobile in motion or shakes a rattle to make a noise.



Figure 3.6 Object Permanence. When the toy is hidden by a screen, the infant acts as if the toy no longer exists. From this observation, Piaget concluded that the infant had not yet acquired the concept of object permanence.

© Laura Dwight Photography

2. Preoperational (2–7 years)

- During this preoperational stage of cognitive development, the child does not yet comprehend certain rules or operations.
- Learns to use language and to represent objects by images and words.
- Thinking is still egocentric: has difficulty taking the viewpoint of others because they believe that everyone else perceives the environment the same way they do.

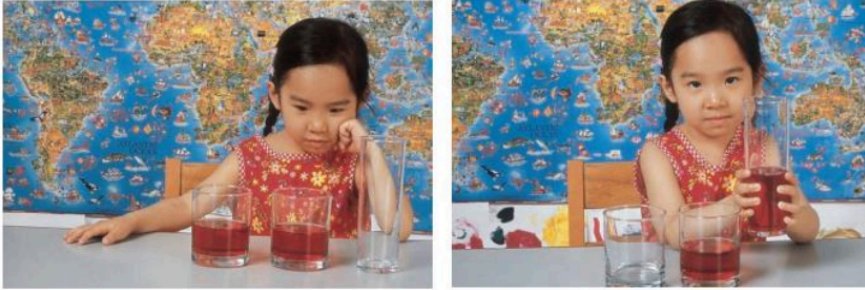


Figure 3.7 The Concept of Conservation. A 4-year old acknowledges that the two short, wide glasses contain the same amount of liquid. However, when the contents of one glass is poured into a tall, thin glass, she says that it contains more liquid. Not until she is several years older will she state that the two different-shaped glasses contain the same amount of liquid.

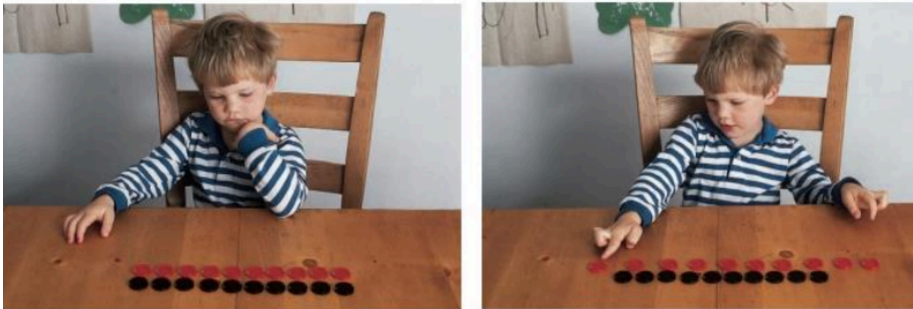


Figure 3.8 Conservation of Number. When two rows of ten checkers are evenly spaced, most children report that they contain the same amount. When one row is then spread out into a larger space, children under age 6 or 7 say that the original row contains few checkers.

3. Concrete operational (7–11 years)

- Between the ages of 7 and 12, children master the various conservation concepts and begin to perform other logical manipulations. They can place objects in order on the basis of a dimension such as height or weight. They can also form a mental representation of a series of actions.

- Piaget calls this period the concrete operational stage: Although children are using abstract terms, they are doing so only in relation to concrete objects – objects to which they have direct sensory access.

- Can think logically about objects and events.
- Achieves conservation of number (age 6), mass (age 7), and weight (age 9).
- Classifies objects according to several features and can order them in series along a single dimension, such as size.

4. Formal operational (11 years and up)

- At about the age of 11 or 12, children arrive at adult modes of thinking. In the formal operational stage, the person is able to reason in purely symbolic terms.
- Formal operational (11 years and up) Sensorimotor (birth–2 years) Concrete operational (7–11 years) Can think logically about abstract propositions and test hypotheses systematically.
- Becomes concerned with the hypothetical, the future, and ideological problems.

THEORY OF MIND

Theory of mind studies suggest that very young children tend to think that everyone else has the same perspective on the world – including what is in a closed box – as they do.

THE DEVELOPMENT OF MORAL JUDGMENT

MORAL DEVELOPMENT

Jean Piaget's theory of moral development unfolds in two main stages: **Heteronomous Morality (around 4-7 years)**: At this stage, children view rules as fixed and unchangeable, handed down by authority figures like parents or teachers. They judge actions based on consequences rather than intentions—good or bad is determined by how much punishment or reward follows an action.

Autonomous Morality (around 7 years and older): As children mature, they begin to understand that rules are created by people and can be changed. They start to consider the intentions behind actions and recognize that moral judgments are more nuanced. They understand that fairness and equity are important and that rules can be adapted to fit different situations.

Lawrence Kohlberg expanded on Piaget's ideas to develop a more detailed theory of moral development. His theory is structured around three main levels, each consisting of two stages, representing different stages of moral reasoning:

1. **Pre-Conventional Level** (typically up to age 9)
2. **Conventional Level** (typically from age 9 to adulthood)
3. **Post-Conventional Level** (emerging in adolescence and adulthood)

PRE-CONVENTIONAL LEVEL (typically up to age 9)

Stage 1: Obedience and Punishment Orientation

Moral reasoning is based on avoiding punishment and the consequences of actions. The focus is on obedience to authority.

Stage 2: Individualism and Exchange

Morality is based on self-interest and reciprocal exchanges. Children understand that different people have different needs and perspectives, and they may act in a way that benefits themselves while considering others' needs.

CONVENTIONAL LEVEL (typically up to age 9 to adulthood)

Stage 3: Good Interpersonal Relationships

Morality is guided by the desire to be seen as a good person by others. Actions are evaluated based on how they affect relationships and social approval.

Stage 4: Maintaining the Social Order Moral reasoning involves understanding and adhering to laws and rules to maintain societal order. There is an emphasis on fulfilling one's duties and respecting authority to uphold the social system.

POST-CONVENTIONAL LEVEL (emerging in adolescence and adulthood)

Stage 5: Social Contract and Individual Rights

Morality is based on a social contract that upholds basic rights and values. Individuals recognize that laws should be changed if they do not promote the greatest good or respect individual rights.

Stage 6: Universal Ethical Principles

Moral reasoning is guided by abstract principles and ethical values such as justice, equality, and respect for human dignity. Individuals make decisions based on their own principles of morality, even if it means going against the law.

PERSONALITY AND SOCIAL DEVELOPMENT

TEMPERAMENT

Temperament refers to the innate aspects of an individual's personality, particularly their emotional reactivity and selfregulation. In children, temperament can significantly influence behavior, emotional responses, and interactions with others.

There are several types of temperament commonly recognized:

1. Easy Temperament
2. Difficult Temperament
3. Slow-to-warm-up Temperament
4. High Sensitivity

EASY TEMPERAMENT

Characteristics: These children are generally adaptable, positive, and easygoing. They have regular eating and sleeping patterns, and they approach new situations and people with curiosity and enthusiasm.

Behavior: They tend to be cheerful, can handle changes well, and typically have a balanced mood.

DIFFICULT TEMPERAMENT

Characteristics: Children with a difficult temperament may have irregular routines and strong reactions to changes or new experiences. They might be more prone to intense emotions and may resist transitions.

Behavior: They can be fussy, have trouble adjusting to new situations, and may exhibit frequent tantrums or irritability.

SLOW-TO-WARM-UP TEMPERAMENT

Characteristics: These children tend to be cautious and take time to adapt to new people, situations, or changes. They may initially react with withdrawal or hesitation but gradually become more comfortable.

Behavior: They often require a gentle approach and time to adjust, but once they feel secure, they usually become more engaged and relaxed.

HIGH SENSITIVITY TEMPERAMENT

Characteristics: Children with high sensitivity are more affected by sensory stimuli and emotional experiences. They may be more perceptive to their environment and have a more intense emotional response.

Behavior: They might become easily overwhelmed by loud noises or strong stimuli and may need more reassurance and calm environments.

EARLY SOCIAL BEHAVIOUR

- Within minutes of birth, babies can imitate the gross facial expressions of adults, suggesting they enter the world ready for social interaction (Meltzoff & Decety, 2003). By two months of age, the average child smiles at the sight of its mother's or father's face.

- The infant's ability to smile at such an early age may have evolved precisely because it strengthened the parent-child bond. Parents interpret these smiles to mean that the infant recognizes and loves them, and this encourages them to be even more affectionate and stimulating in response.

- At about seven or eight months, however, many infants begin to show wariness or distress at the approach of a stranger and protest strongly when left in an unfamiliar setting or with an unfamiliar person.

- Parents are often disconcerted when their formerly gregarious infant, who had always happily welcomed the attentions of a babysitter, now cries inconsolably when they prepare to leave – and continues to cry for some time after they have left.

- Memory development is probably also involved in separation anxiety, the child's distress when a caretaker is not nearby. The infant cannot 'miss' the parent unless he or she can recall that parent's presence a minute earlier and compare it with the parent's absence now.

– When the parent leaves the room, the infant is aware that something is amiss, and this can lead to distress. As the child's memory of past instances of separation improves, the child becomes better able to anticipate the return of the absent parent, and anxiety declines.

TYPES OF ATTACHMENT

ATTACHMENT

- The term attachment is used to describe an infant's tendency to seek closeness to particular people and to feel more secure in their presence. Psychologists at first theorized that attachment to the mother developed because she was the source of food, one of the infant's most basic needs.

- The comfort they derive from the mother's presence cannot come from her role in feeding. A well-known series of experiments with monkeys also showed that there is more to mother-infant attachment than nutritional needs (Harlow & Harlow, 1969).

SECURE ATTACHMENT

Characteristics: Children with secure attachment feel confident that their caregiver will respond to their needs. They are generally comfortable exploring their environment while knowing they can return to their caregiver for comfort.

Behavior: They typically show distress when the caregiver leaves but are quickly comforted upon their return. They are also likely to be easily soothed and to explore their surroundings with enthusiasm.

INSECURE - AVOIDANT ATTACHMENT

Characteristics: Children with insecure-avoidant attachment often seem indifferent to the caregiver's presence and absence. They may avoid or ignore the caregiver and have difficulty expressing emotions.

Behavior: They may not show much distress when the caregiver leaves and often avoid contact or interaction when the caregiver returns. They tend to be self-reliant and may have difficulty seeking help or comfort from others.

INSECURE - AMBIVALENT ATTACHMENT

Characteristics: Children with insecure-ambivalent attachment are often very clingy and dependent on their caregiver. They may be anxious about the caregiver's availability and exhibit strong distress when separated.

Behavior: They may show intense distress when the caregiver leaves but are not easily comforted upon their return. They might alternate between seeking comfort

and resisting it, showing mixed feelings of wanting closeness but also being unsure if the caregiver will stay.

DISORGANIZED ATTACHMENT

Characteristics: Children with disorganized attachment often display confusing or contradictory behaviors. This style can arise from inconsistent or frightening caregiving, leading to a lack of clear strategy for dealing with stress.

Behavior: They may show a mix of avoidance, resistance, and confusion. Their behavior can seem erratic or unpredictable, and they might display signs of fear or apprehension toward the caregiver.

SELF CONCEPT

Children's self-concepts grow steadily through development, and encompass many different aspects of self (Harter, 1998; Neisser, 1988).

- These may include a sense of their bodies in space and a sense of the self as continuous in time ('I am who I am, yesterday and today'). Children develop a sense of themselves as social agents interacting with others and a sense of the self in the broader social and cultural context, including their roles in relation to others. Finally, as we discussed somewhat in the section on 'theory of mind', children have a sense of the self as a private entity that others do not have direct access to.

SELF ESTEEM

One aspect of the self that has been studied extensively in children is self-esteem, which we might define as the value-laden sense of self (Harter, 1998). Children's self-esteem generally shows several patterns of change from preschool into the adolescent years.

- **Preschoolers** tend to have extremely positive views of themselves that are sometimes comically unrealistic. A 3-year-old may boast that he is the bravest, fastest, smartest kid around! This extreme self-optimism may be adaptive for the young child, giving him confidence to persist even in the face of frequent failures.

- **Children in the early school years** tend to be positive, but not as unrealistically positive as preschoolers. They may compare themselves to others, but more often compare themselves to their younger selves, commenting on how much taller, stronger, or bigger they now are (Ruble & Frey, 1991).

They may become discouraged if they fail at tasks (Lewis et al., 1992), but failures usually do not have a persistent effect on their general sense of self

- **In middle childhood (roughly ages 8-12)**, children engage in considerably more comparisons of themselves and their skills to other children, and these social comparisons begin to influence the children's self-esteem (Frey & Ruble, 1990).

But although children may differentiate between their abilities in different domains, they are beginning to make trait-attributions for themselves, for example, believing they will never be good at athletics, but they will continue to be good at math.

- **In adolescence and young adulthood**, social comparison becomes key to self-esteem. Young people care deeply about how they compare to others, and what others think of them. These social comparisons and evaluations can have profound effects on how positively they think of themselves (although young people differ greatly in how susceptible they are to these evaluations). Their sense of self becomes complex, and they increasingly think of themselves in terms of enduring traits and dispositions.

GENDER IDENTITY

Most children acquire a gender identity, a firm sense of themselves as either male or female. But most cultures elaborate the biological distinction between male and female into a sprawling network of beliefs and practices that permeate virtually every domain of human activity.

But whatever its current definition, each culture still strives to transform male and female infants into 'masculine' and 'feminine' adults.

SEX TYPING

The term sex typing refers to the acquisition of behaviors and characteristics that a culture considers appropriate to one's sex. Note that gender identity and sex typing are not the same thing. A girl may have a firm acceptance of herself as female yet not avoid all behaviors that are labeled masculine.

But are gender identity and sex typing simply the product of cultural prescriptions and expectations, or are they partly a product of 'natural' development? In this section we will examine four theories that attempt to answer this question.

THEORIES ON SEX TYPING

1. Social Learning Theory

Kohlberg's Sex-Role Identity Development The account of sex typing put forward by social learning theory emphasizes the rewards and punishments that children receive for sex-appropriate and sex-inappropriate behaviors, respectively, and the ways children learn sex-typed behavior by observing adults (Bussey & Bandura, 2004). Observational learning also enables children to imitate same-sex adults and thereby acquire sex-typed behaviors.

Two broader points about social learning theory are worth noting. Social learning theory treats sex-typed behaviors as any other learned behaviors. No special psychological principles or processes must be proposed to explain how children become sex typed. Second, if there is nothing special about sex-typed behaviors, then sex typing itself is neither inevitable nor unmodifiable.

According to cognitive-developmental theory, gender identity itself develops slowly over the years from 2 to 7, in accordance with the principles of the preoperational stage of cognitive development.

In particular, preoperational children's overreliance on visual impressions and their resulting inability to conserve an object's identity when its appearance changes become relevant to their concept of sex.

2. Cognitive-Developmental Theory

According to cognitive-developmental theory, gender identity itself develops slowly over the years from 2 to 7, in accordance with the principles of the preoperational stage of cognitive development.

In particular, preoperational children's overreliance on visual impressions and their resulting inability to conserve an object's identity when its appearance changes become relevant to their concept of sex.

3. Kohlberg's Sex-Role Identity Development

Substantial evidence supports Kohlberg's general sequence of sexrole identity development (Szkrybalo & Ruble, 1999). The notion that sexrole identity becomes stable only after gender constancy is in place has not been supported. Children have strong and clear preferences for activities deemed appropriate for their sex long before they attain gender constancy (Maccoby, 1998).

4. Gender schemas

Gender schemas are cognitive structures or mental frameworks that help individuals organize and interpret information related to gender. They encompass beliefs, expectations, and behaviors associated with being male or female.

These schemas develop early in life as children observe and interact with their environment, including parents, peers, media, and cultural norms.

ADOLESCENT DEVELOPMENT

- Adolescence refers to the period of transition from childhood to adulthood. It extends roughly from age 12 to the late teens, when physical growth is nearly complete.

- During this period, the young person becomes sexually mature and establishes an identity as an individual apart from the family.

Puberty, the period of sexual maturation that transforms a child into a biologically mature adult capable of sexual reproduction, takes place over a period of three or four years.

- It starts with a period of very rapid physical growth (the so-called adolescent growth spurt) accompanied by gradual development of the reproductive organs and secondary sex characteristics (breast development in girls, beard growth in boys, and the appearance of pubic hair in both sexes)

Menarche, the first menstrual period, occurs relatively late in puberty – about 18 months after a girl's growth spurt has reached its peak. The first menstrual periods tend to be irregular, and ovulation (the release of a mature egg) does not usually begin until a year or so after menarche.

Spermarche. This is the male counterpart to menarche. Spermarche refers to the first ejaculation of semen, which typically occurs during puberty. It often happens during sleep (nocturnal emissions) or through sexual activity.

PSYCHOSOCIAL EFFECTS OF PUBERTY

Emotional Fluctuations

Puberty brings significant hormonal shifts that can contribute to mood swings, increased emotional sensitivity, and changes in behavior. Adolescents may experience heightened feelings of stress, anxiety, or depression.

Self-Esteem and Body Image

As adolescents undergo physical changes, their self-esteem and body image can be affected. Girls and boys may feel self-conscious about their changing bodies, which can impact their confidence and social interactions. Adolescents often compare themselves to their peers, which can exacerbate feelings of inadequacy or insecurity.

Identity and Independence

Autonomy: Adolescents seek greater independence from their parents, leading to potential conflicts as they assert their own identity and make more autonomous decisions.

Self-Concept: The quest for self-understanding becomes more pronounced, with adolescents exploring their values, beliefs, and personal goals.

IDENTITY DEVELOPMENT

Erikson's Theory

Identity vs. Role Confusion: According to Erik Erikson's psychosocial development theory, adolescence is characterized by the crisis of "identity vs. role confusion." Teens work to develop a coherent sense of self and personal identity while navigating the expectations and roles society imposes.

Exploration and Commitment

Identity Exploration: Adolescents explore different roles, values, and beliefs as they attempt to forge their own identity. This exploration can involve trying out different behaviors, relationships, and ideologies.

Commitment: Over time, they begin to make commitments to certain values, goals, and roles, leading to a more stable and coherent sense of identity.

Identity achievement. Individuals in this status have passed through an identity crisis, a period of active questioning and self-definition. They are committed to ideological positions that they have worked out for themselves, and they have decided on an occupation. They have begun to think of themselves as a future doctor, not just a pre-med chemistry major. They have reexamined their family's

religious and political beliefs and discarded those that don't seem to fit their identity

Foreclosure. Those in this status are also committed to occupational and ideological positions, but they show no signs of having gone through an identity crisis. They have accepted their family's religion without question. When asked about politics, they often say that they have never given it much thought. Some of them seem committed and cooperative; others seem rigid, dogmatic, and conforming. They give the impression that they would be lost if a major event challenged their unexamined rules and values.

Moratorium. These young people are in the midst of an identity crisis. They are actively seeking answers but have not resolved the conflicts between their parents' plans for them and their own interests. They may express a set of political or religious beliefs with great intensity for a while, only to abandon them after a period of reconsideration. At best, they seem sensitive, ethical, and open-minded; at worst, they appear anxiety-ridden, self-righteous, and vacillating (Scarr, Weinberg, & Levine, 1986).

Identity diffusion. This is Marcia's term for what Erikson calls identity confusion. Some individuals in this category have had an identity crisis; others have not. In either case, they still have no integrated sense of themselves.

They say that it might be 'interesting' to go to law school or start a business, but they are not taking steps in either direction. They say that they are not interested in religion or politics. Some seem cynical, and others shallow and confused. Some, of course, are still too young to have reached the identity development of adolescence

Lesson 3: PSYCHOSEXUAL & PSYCHOSOCIAL DEVELOPMENT

PSYCHOSEXUAL DEVELOPMENT (Sigmund Freud)

1. Oral Stage (0-1 year)

- During this stage, pleasure centers on the mouth (sucking, biting).

Implications

Overindulgence of oral needs may lead to oral incorporative personality disorder such as overeating, smoking, and alcoholism.

Dissatisfaction may lead to oral aggressive personality disorder such as sarcasm and tactlessness.

2. Anal Stage (2-3 year)

- It occurs around the second year of life. During this stage, the child derive pleasure from the elimination of body wastes.
- Through toilet training, the child learns the basic rules of society.

Implications - Anal fixations can lead to **anal retentive personality disorder** such as having obsession with cleanliness or **anal expulsive personality disorder** such as clumsiness.

3. Phallic Stage (3-6 years)

- Children during this stage derive pleasure from examining, touching, fondling, or displaying their genitals. These behaviors are likely motivated by curiosity about the differences between the anatomy of man and woman.
- During this stage, parents and teachers need to properly educate children about sexuality.

Implications

Fixations at this age may lead to *abnormal sex behaviors* in later life.

4. Latency Stage (6-puberty)

- Sexual impulses are repressed, and children focus on social interactions and skills development.

Implications

This stage is crucial for developing communication and social skills.

5. Genital Stage (puberty onward)

- Sexual maturity and the establishment of mature, balanced relationships.

Implications

Successful resolution of earlier conflicts leads to well-adjusted individuals capable of forming healthy, intimate relationships.

Meanwhile, *sexual problems* may result as a consequence of inappropriate sex behaviors.

Erik Erikson's theory of PSYCHOSOCIAL DEVELOPMENT

- outlines eight stages that individuals go through from infancy to adulthood.
- Each stage presents a central conflict or challenge that must be resolved for healthy psychological development.

Trust vs. Mistrust (Infancy, 0-1 year)

- Infants learn to trust their caregivers for basic needs.
- Successful resolution leads to a sense of security.

Autonomy vs. Shame and Doubt (Early Childhood, 1-3 years)

- Children learn to assert their independence. Successful resolution fosters confidence and autonomy.
- If children are overly protected, they may become overly dependent on their parents and feel a sense of shame or doubt in their own abilities.

Initiative vs. Guilt (Preschool Age, 3-6 years)

- Children begin to initiate activities and assert control.
- Positive experiences lead to a sense of initiative, while excessive criticism may result in guilt.

Industry vs. Inferiority (School Age, 6-12 years)

- Children learn to work with others and develop skills.
- Success leads to a sense of competence, while failure may result in feelings of inferiority.

Identity vs. Role Confusion (Adolescence, 12-18 years)

- Teens explore their identity and sense of self. Successful resolution leads to a strong sense of identity, while confusion may result in uncertainty about one's place in the world.

Intimacy vs. Isolation (Young Adulthood, 18-40 years)

- Individuals seek deep relationships and connections.
- Successful resolution leads to healthy intimate relationships, while failure may result in isolation.

Generativity vs. Stagnation (Middle Adulthood, 40-65 years)

- Adults focus on contributing to society and helping the next generation. Success fosters a sense of purpose, while failure may lead to feelings of stagnation.

Integrity vs. Despair (Late Adulthood, 65+ years)

- Focused on self-reflection in one's life, individuals may feel a sense of fulfillment or regret. Successful resolution results in a sense of integrity and acceptance.
- Those who are unsuccessful in this stage will feel that their life has been wasted and will experience regrets & despair.

Lesson 4: SENSORY PROCESSES

SENSES

- **Our senses are our input systems.** From them we acquire data about the world around us, which constitutes the most immediate means (although, as we shall see, not the only means) by which we determine the character of the environment within which we exist and behave.

CHARACTERISTICS OF SENSORY MODALITIES

1. Threshold Sensitivity

- refers to the minimum level of stimulus intensity needed for a sensory system to detect a stimulus. This is often divided into two types: **absolute threshold**, the smallest detectable level of a stimulus, and **difference threshold** (or just noticeable difference), the smallest change in stimulus intensity that can be detected. Sensitivity can vary among individuals and can be influenced by factors like attention, experience, and the context in which a stimulus is presented.

2. Suprathreshold Sensation

- occurs when stimulus intensity exceeds the threshold for detection, resulting in conscious awareness of the stimulus. This involves a range of intensities where perception can vary widely, influenced by factors such as sensory adaptation (reduced sensitivity due to constant exposure) and individual differences in perception. Suprathreshold stimuli can evoke various sensations, and their effects can be nuanced, depending on their intensity and context.

3. Signal detection theory (SDT)

- is a framework used to understand how decisions are made under conditions of uncertainty. It distinguishes between the ability to perceive signals (true positives) and the tendency to identify noise (false positives). SDT emphasizes the role of both sensory sensitivity and decision-making criteria, allowing for a more comprehensive understanding of perception by considering factors like bias and external noise, which affect how stimuli are detected.

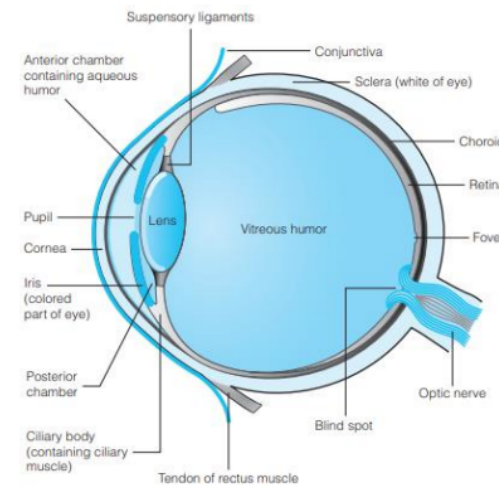
4. Sensory coding

- refers to the way sensory information is represented in the nervous system. Different modalities (like vision, hearing, touch) employ distinct coding strategies. This can include temporal coding, where the timing of neural spikes conveys information, and spatial coding, where the location of neural activation reflects

stimulus features. Coding ensures that sensory experiences are translated into meaningful perceptions, allowing the brain to interpret and respond to the environment effectively

Sense of Sight **THE VISUAL SYSTEM**

LIGHT AND VISION



- We singled out **intensity** because it is common to all forms of information, although it takes different forms for different kinds of information.

For example, for light, intensity corresponds to the number of incoming photons per second, while for sound, intensity corresponds to the amplitude of sound pressure waves.

- The first stage in vision is, of course, the eye, which contains two systems: one for forming the image and the other for transducing the image into

electrical impulses.

- An analogy is often made between an eye and a camera. While this analogy is misleading for many aspects of the visual system, it is appropriate for the imageforming system, whose function is to focus light reflected from an object so as to form an image of the object on the retina.

- Vision begins when light passes through the protective covering of the eye. This covering, the **cornea**, is a clear dome that protects the eye.

- The light then passes through the **pupil**, the opening in the center of the iris. It continues through the crystalline lens and the vitreous humor. The vitreous humor is a gel-like substance that comprises the majority of the eye

- Eventually, the light focuses on the **retina** where electromagnetic light energy is transduced—that is, converted—into neural electrochemical impulses (Blake, 2000)

- Vision is most acute in the **fovea**, which is a small, thin region of the retina, the size of the head of a pin. When you look straight at an object, your eyes rotate so that the image falls directly onto the fovea.

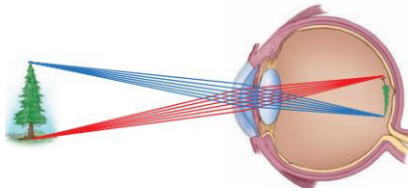
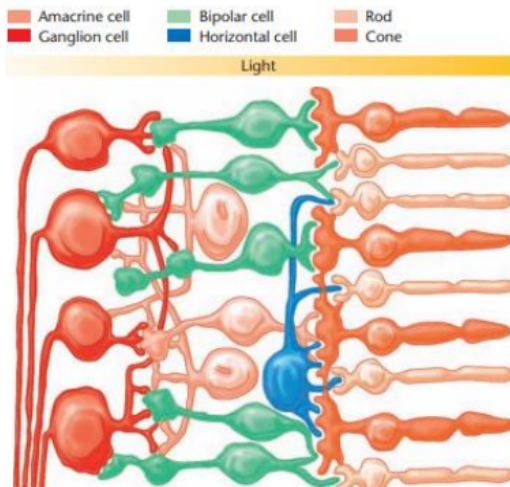


Image Formation in the Eye. Some of the light from an object enters the eye, where it forms an image on the retina. Both the cornea and the lens bend the light rays, as would a lens in a telescope. Based purely on optical considerations we can infer that the retinal image is inverted.



- Although the retina is only about as thick as a single page in this book, it consists of **three main layers of neuronal tissue**.

- The **first layer** of neuronal tissue—closest to the front, outward-facing surface of the eye—is the layer of ganglion cells, whose axons constitute the **optic nerve**.

- The **second layer** consists of three kinds of interneuron cells. *Amacrine cells* and *horizontal cells* make single lateral (i.e.,

horizontal) connections among adjacent areas of the retina in the middle layer of cells.

- The **third layer** of the retina contains the **photoreceptors**, which convert light energy into electrochemical energy that is transmitted by neurons to the brain.

- There are **two kinds of photoreceptors**— rods and cones. Each eye contains roughly 120 million rods and 8 million cones. **Rods** and **cones** differ not only in shape but also in their compositions, locations, and responses to light.

- The **rods** are long and thin photoreceptors. They are more highly concentrated in the periphery of the retina than in the foveal region. The rods are responsible for **night vision** and are sensitive to light and dark stimuli.

- The **cones** are short and thick photoreceptors and allow for the **perception of color**. They are more highly concentrated in the foveal region than in the periphery of the retina (Durgin, 2000).

DARK ADAPTATION

Imagine yourself entering a dark movie theater from a bright street. At first you can see hardly anything in the dim light reflected from the screen. However, in a few minutes you are able to see well enough to find a seat. Eventually you are able to recognize faces in the dim light.

- This change in your ability to see in the dark is referred to as dark adaptation: As you spend time in the dark, two processes occur that account for it. One, which we've already mentioned, is that the eye's pupil changes size – it enlarges when the surrounding environment becomes dark. More importantly, there are photochemical changes in the receptors that increase the receptors' sensitivity to light.

VISUAL ACUITY

- refers to the eye's ability to resolve details. There are several ways of measuring visual acuity, but the most common measure is the familiar eye chart found in optometrists' offices.

SPATIAL ACUITY

- **The ability to see details of form.** An example of spatial acuity is reading text. When you read a book, your ability to distinguish between closely spaced letters and words demonstrates spatial acuity. A person with high spatial acuity can read small print clearly, while someone with lower spatial acuity might struggle to read the same text.

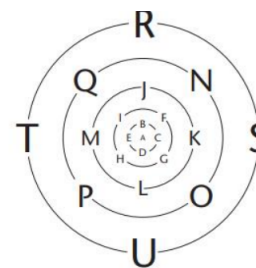
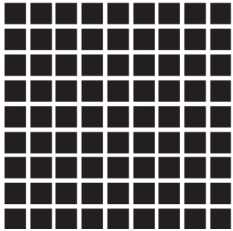


Figure 4.11 Visual Acuity Decreases in the Periphery. Letter sizes have been scaled so that when the central A is looked at directly, all the other letters are approximately equally easy to read.

CONTRAST ACUITY

- **The ability to see differences in brightness.** An example of contrast acuity can be seen in how well you can distinguish a gray object from a light gray background. If the contrast is high (for instance, a black object against a white background), it's easy to see. However, if both the object and background are similar shades of gray, someone with lower contrast acuity may have difficulty seeing the object clearly.

THE HERMANN GRID



- The gray smudges seen at the white intersections are illusionary. They are seen by your eye and brain but are not on the page. To convince yourself that they are not really there, move your eyes to the different intersections. You will note that there is never a gray smudge at the intersection you are looking at directly. They appear in only intersections that fall on your peripheral visual field.

THEORIES OF COLOR VISION

Monochromats - unable to discriminate among different wavelengths and are truly color-blind.

Dichromats - have deficient color vision, as they confuse some colors
Trichromats can distinguish among

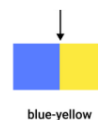
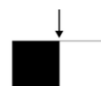
Trichromats - people with normal vision, can distinguish colors



The **trichromatic theory** suggests that we perceive color through three types of cones in our eyes, sensitive to red, green, and blue light.

For example, when these cones are stimulated in different combinations, we see various colors.

The opponent-color theory, on the other hand, posits that we process colors in pairs: red-green, blue-yellow, and black-white. This means that seeing one color in a pair can suppress the perception of the other; for instance, if you look at something red, it can make green seem less intense.



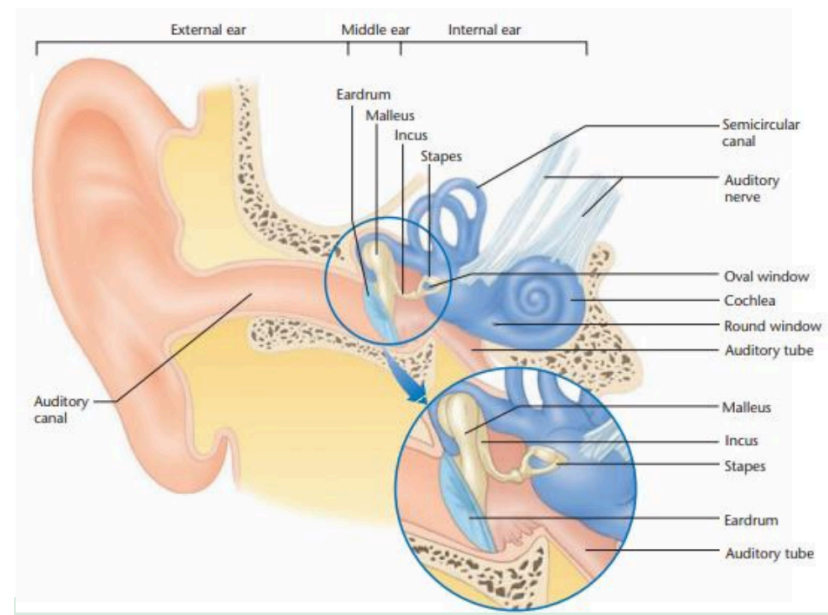
Sense of Hearing

THE AUDITORY SYSTEM

AUDITION

- Like the eye, the ear contains two systems. One system amplifies and transmits the sound to the receptors, whereupon the other system takes over and transduces the sound into neural impulses.

THE AUDITORY SYSTEM



1. Outer Ear

Pinna (Auricle): The visible part that collects sound waves.

Auditory Canal: The tube that channels sound to the eardrum.

2. Middle Ear

Tympanic Membrane (Eardrum): Vibrates in response to sound waves.

Ossicles: Three small bones (*malleus*, *incus*, *stapes*) that amplify sound.

Eustachian Tube: Equalizes pressure between the middle ear and the environment.

3. Inner Ear

Cochlea: A spiral-shaped structure that converts sound waves into neural signals.

Semicircular Canals: Help with balance and spatial orientation.

Auditory Nerve: Transmits auditory information to the brain.

SOUND WAVES

Pure Tone

A pure tone is a sound with a single frequency, producing a clear and distinct pitch. It can be generated by a tuning fork or a sine wave generator.

Frequency

Frequency refers to the number of sound wave cycles per second, measured in hertz (Hz). Higher frequencies correspond to higher pitches.

Hertz (Hz)

Hertz is the unit of measurement for frequency. For example, a frequency of 440 Hz means 440 cycles of the sound wave occur in one second, commonly associated with the pitch of the musical note A above middle C.

Pitch

Pitch is the perceived quality of a sound that allows it to be classified as "high" or "low." It is directly related to the frequency of the sound wave; higher frequencies yield higher pitches.

Amplitude

Amplitude measures the height of the sound wave, which affects the energy and intensity of the sound. Greater amplitude means a stronger wave.

Loudness

Loudness is the perceived volume of a sound, which corresponds to amplitude. Sounds with higher amplitude are perceived as louder, while lower amplitudes are softer.

Timbre

Timbre refers to the quality or color of a sound that distinguishes it from other sounds with the same pitch and loudness. It's influenced by the waveform and harmonics present in the sound, allowing us to differentiate between instruments or voices. For example, what makes a middle C produced by a violin sound different from a middle-C produced by a trombone.

PLACE THEORY

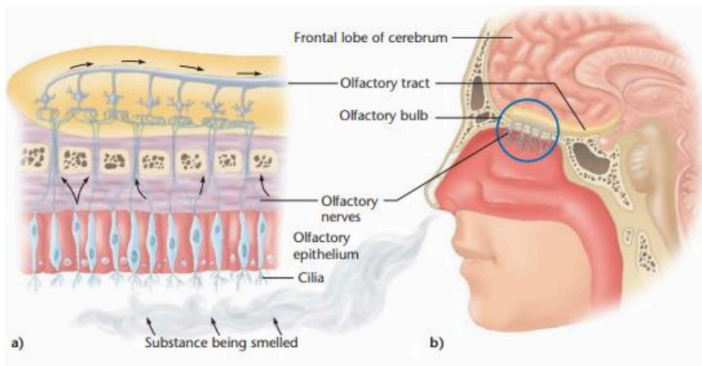
Place theory posits that our perception of pitch is determined by the specific location along the cochlea where sound waves stimulate hair cells. According to this theory, different frequencies of sound waves activate different areas of the basilar membrane within the cochlea. The basilar membrane is tonotopically organized, meaning that different frequencies of sound activate specific places along its length.

High Frequencies: These sounds stimulate hair cells located near the base of the cochlea.

Low Frequencies: These sounds activate hair cells closer to the apex (the tip) of the cochlea.

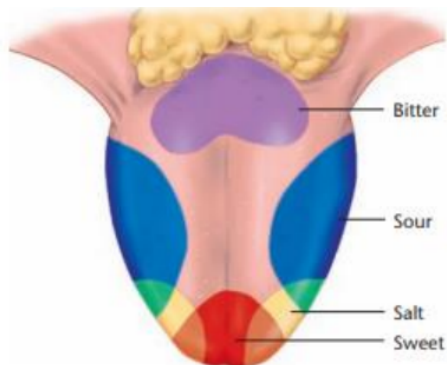
Example: If you hear a high-pitched note, like a flute playing a C6, the hair cells at the base of the cochlea are activated. Conversely, if you hear a low note, like a tuba playing a C2, the hair cells near the apex respond. This location-specific activation allows the brain to interpret different pitches based on which part of the cochlea is stimulated.

THE OLFACTORY SYSTEM



OLFACTORY

- The olfactory system consists of the receptors in the nasal passage, certain regions of the brain, and interconnecting neural pathways. The receptors for smell are located high in the nasal cavity. When the cilia (hairlike structures) of these receptors come into contact with volatile molecules, an electrical impulse results; this is the transduction process.
- This impulse travels along nerve fibers to the olfactory bulb, a region of the brain that lies just below the frontal lobes.
- The olfactory bulb in turn is connected to the olfactory cortex on the inside of the temporal lobes. (Interestingly, there is a direct connection between the olfactory bulb and the part of the cortex known to be involved in the formation of long-term memories; perhaps this is related to the Proustian idea that a distinctive smell can be a powerful aid in retrieving an old memory.)



THE GUSTATORY SYSTEM

CULTURE & PAIN

- The stimulus for taste is a substance that is soluble in saliva. The gustatory

system includes receptors that are located on the tongue as well as on the throat and roof of the mouth; the system also includes parts of the brain and interconnecting neural pathways. In what follows, we focus on the receptors on the tongue. These taste receptors occur in clusters, called taste buds, on the bumps of the tongue and around the mouth.

- At the ends of the taste buds are short, hairlike structures that extend outward and make contact with the solutions in the mouth. The contact results in an electrical impulse; this is the transduction process. The electrical impulse then travels to the brain.
- Sensitivity to different taste stimuli varies from place to place on the tongue. While any substance can be detected at almost any place on the tongue (except the center), different tastes are best detected in different regions. In the center of the tongue is a region that is insensitive to taste (the place to put an unpleasant pill).

PRESSURE



- The stimulus for sensed pressure is physical pressure on the skin. Although we are not aware of steady pressure on the entire body (such as air pressure), we can discriminate among variations in pressure over the surface of the body.
- When we are actively exploring the environment through touch, the motor senses contribute to our experience. Through active touch alone we can readily identify familiar objects, using it to recognize coins, keys, and other small objects.

TEMPERATURE

- The stimulus for temperature is the temperature of our skin. The receptors are neurons just under the skin.
- In the transduction stage, cold receptors generate a neural impulse when there is a decrease in skin temperature, while warm receptors generate an impulse when there is an increase in skin temperature.

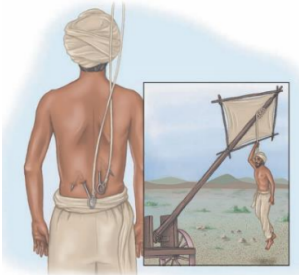
THE PAIN SYSTEM

- Any stimulus that is intense enough to cause tissue damage is a stimulus for pain. It may be pressure, temperature, electric shock, or chemical irritants. Such a

stimulus causes the release of chemical substances in the skin, which in turn stimulate distinct high-threshold receptors (the transduction stage). These receptors are neurons with specialized free nerve endings, and researchers have identified several types.

- With regard to variations in the quality of pain, perhaps the most important distinction is between the kind of pain we feel immediately upon suffering an injury, called phasic pain, and the kind we experience after the injury has occurred, called tonic pain. Phasic pain is typically a sharp, immediate pain that is brief in duration (that is, it rapidly rises and falls in intensity), whereas tonic pain is typically dull and long lasting.

- More than any other sensation, the intensity and quality of pain are influenced by factors other than the immediate stimulus. These factors include the person's culture, expectations, and previous experience. The striking influence of culture is illustrated by the fact that some non-Western societies engage in rituals that seem unbearably painful to Westerners. A case in point is the hookswinging ceremony practiced in some parts of India:



OPIOIDS

The use of opioids for treating chronic pain is a complex and debated topic.

Effectiveness: Opioids can be effective in managing severe pain, especially in the short term. However, their long-term effectiveness in chronic pain is less clear, and they may not address the underlying cause of the pain.

Risks: Long-term opioid use carries significant risks, including dependence, addiction, overdose, and tolerance. These risks can outweigh the benefits for many individuals with chronic pain.

Alternative Treatments: Non-opioid medications, physical therapy, cognitive-behavioral therapy, and other interventions may offer safer and more sustainable options for managing chronic pain.

Lesson 5: Perception

PERCEPTION

Perception is the set of processes by which we recognize, organize, and make sense of the sensations we receive from environmental stimuli.

The **theory of ecological optics**, primarily developed by psychologist James J. Gibson, emphasizes the relationship between organisms and their environment in terms of how they perceive it. This theory suggests that perception is not merely a process of internalizing sensory information but involves directly interacting with the environment.

5 FUNCTIONS OF PERCEPTION

- 1. Attention:** Choosing which information to focus on and which to ignore (e.g., should I listen to the conversation about my spouse or the one about cricket?).
- 2. Location:** Identifying where objects are (e.g., is that dangerous object close to me or far away?).
- 3. Recognition:** Figuring out what objects are present (e.g., is that a tent or a bear?).
- 4. Abstraction:** Distinguishing key features of an object (e.g., describing a wrinkled couch as "rectangular" even if it isn't perfect).
- 5. Constancy:** Recognizing consistent features of objects despite changes in perspective (e.g., knowing a door is rectangular even when it looks like a trapezoid from an angle).

ATTENTION

Attention is the means by which we actively process a limited amount of information from the enormous amount of information available through our senses, our stored memories, and our other cognitive processes (De Weerd, 2003a; Rao, 2003).

SELECTIVE ATTENTION & EYE MOVEMENT

In the previous chapter, we noted that our senses are constantly overwhelmed by information from the environment. While reading, take a moment to notice the various stimuli around you. Most of this information is irrelevant to your current task, so our sensory systems must filter out what's not important. Without this filtering, we'd struggle to focus and accomplish anything.

Selective attention allows us to focus on a small portion of the available information. This involves three distinct processes in the brain:

Alertness: Keeping us aware and alert, like an air-traffic controller tracking multiple aircraft.

Focusing Resources: Directing our attention to relevant information, such as listening to someone's voice.

Decision-Making: Choosing whether to keep attending to information or shift our focus to something else.

DIRECTING ATTENTION

We often direct our attention by moving our eyes to bring objects of interest into focus. When observing someone looking at a scene, you'll notice their eyes aren't still; they make **quick movements** called **saccades**, interrupted by **brief stops** called **fixations**. During fixations, we gather visual information, while saccades happen too fast to process much. Eye movement studies reveal that we tend to fixate on areas with the most information. For example, when looking at a face, people focus on the eyes, nose, and mouth—features that help distinguish one face from another.

WEAPON FOCUS

Research shows that during stressful situations, like armed crimes, people often pay more attention to the weapon than other details, such as the attacker's appearance. Experiments confirm that when a threatening object is present, people fixate on it more, leading to less recognition of other scene elements.

ATTENTION, PERCEPTION, AND MEMORY:

In the auditory domain, a procedure known as shadowing is used to demonstrate this. The observer wears stereo earphones; however, entirely different messages are played to the two different ears.

The person is asked to repeat (or 'shadow') one of the messages as it is heard. After a few minutes the messages are turned off and the listener is asked about the unshadowed message.

Loftus (1972) reports an analogous finding in vision. He showed two pictures, side-by-side, but asked the observer to look at only one of them (and monitored the observer's eye movements to ensure compliance).

The finding was that later memory was considerable for the attended picture, but was nil for the unattended picture.

The fact that we can report so little about auditory messages that we do not attend to initially led researchers to the idea that nonattended stimuli are filtered out completely (Broadbent, 1958).

However, there is now considerable evidence that our perceptual system processes nonattended stimuli to some extent (in vision as well as audition), even though those stimuli rarely reach consciousness.

One piece of evidence for partial processing of nonattended stimuli is that we are very likely to hear the sound of our own name, even when it is spoken softly in a nonattended conversation.

Hence, lack of attention does not block messages entirely; rather, it attenuates them, much like a volume control that is turned down but not off (Treisman, 1969)

BENEFITS OF SELECTIVE ATTENTION

Inattention blindness is a psychological phenomenon where a person fails to notice something obvious in their environment because their attention is focused elsewhere.

For example, if someone is watching a basketball game, they might not notice a person in a gorilla suit walking through the scene.

Change blindness refers to the failure to detect changes in a visual scene. This often occurs when changes are introduced during a visual disruption, like a blink or a brief distraction.

For instance, if a person is shown two images of the same scene with slight differences and asked to identify the changes, they may struggle to do so if the changes occur during a momentary interruption. In summary, selective attention helps us manage the flood of information we encounter, allowing us to focus on what matters most for our tasks.

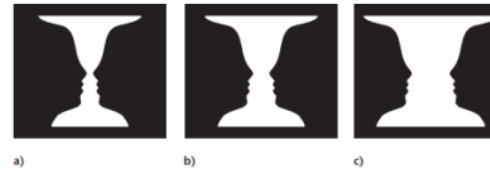
LOCALIZATION

To know where the objects in our environment are, the first thing that we have to do is separate the objects from one another and from the background.

Then the perceptual system can determine the position of the objects in a three-dimensional world, including their distance from us and their patterns of movement.

FIGURE AND GROUND

Notice that as you look at Figure for a few moments, the two pattern organizations alternate in consciousness, demonstrating that the organization into figure and ground is in your mind, not in the stimulus.



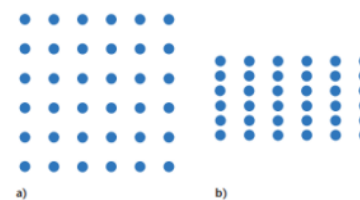
Generally speaking, the smaller an area or a shape, the more likely it is to be seen as a figure. This is demonstrated by comparing Figures a, b, and c. It is easier to see the vase when the white area is smaller,

and it is easier to see the faces when the black area is smaller.

DETERMINANTS OF GROUPINGS GESTALT

PROXIMITY

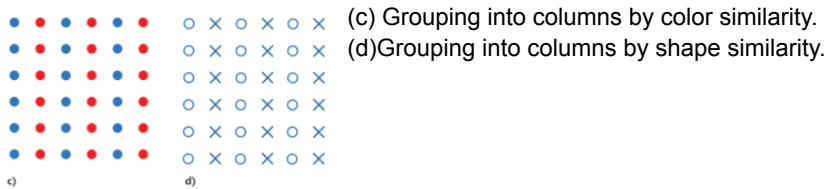
The **principle of proximity** states that objects that are close to each other are perceived as a group or a single unit. Our brain tends to organize elements that are near each other into a coherent whole.



(a) Equally spaced dots can be seen as rows, columns, or even diagonals.
(b) Grouping into columns by proximity.

SIMILARITY

The **principle of similarity** involves grouping together elements that are similar in shape, color, size, or other attributes. Items that share similar characteristics are perceived as belonging together.



CONTINUITY



The **principle of continuity** (or good continuation) suggests that we perceive lines and shapes as continuing in a smooth, continuous path rather than abruptly changing direction. This helps us follow the direction and flow of objects.

(e) Grouping by good continuation.

CLOSURE

The **principle of closure** refers to the tendency to fill in missing parts of a figure to perceive it as a complete, closed object. Our brains are inclined to complete incomplete shapes or patterns.



(f) Grouping by closure

PERCEPTUAL GROUPING

Although perceptual grouping has been studied mainly in visual perception, the same determinants of grouping appear in audition. Many demonstrations of this come from researchers who study music perception. Proximity in time clearly operates in audition.

For example, four drumbeats with a pause between the second and third beats will be heard as two pairs.

Similarly, sets of notes that are close together in time will be grouped together (as in the DUH-DUH-DUH-DUMMM opening of Beethoven’s 5th symphony).

Notes that are proximal in pitch will also be grouped together. Music often involves counterpoint, where two melodies occur simultaneously. Listeners can shift attention between melodies so that the attended.

DEPTH CUES
PERCEIVING DISTANCE

BINOCULAR CUES

Visual information that requires both eyes. The primary binocular cues are retinal disparity (the slight difference in images between the two eyes) and convergence (the inward angle of the eyes when focusing on a nearby object).

These cues provide more precise depth perception, especially for objects close to the viewer.

MONOCULAR CUES

Visual information that can be perceived using one eye. They include size, texture gradient, interposition, linear perspective, and motion parallax. These cues help in depth perception and understanding spatial relationships.

MONOCULAR CUES

1. **Relative Size:** Smaller objects look farther away in a group of similar items (like trees).
2. **Interposition:** If one object blocks another, the one in front seems closer (like overlapping buildings).
3. **Relative Height:** Objects closer to the horizon appear farther away (like birds in the sky).
4. **Perspective:** Parallel lines that seem to meet in the distance indicate depth (like railroad tracks).
5. **Shading and Shadows:** Shadows on surfaces show where light is blocked, helping to define shapes and depth.

DEPTH CUES

PERCEIVING DISTANCE

MOTION

Have you ever noticed that if you are moving quickly – perhaps on a fast-moving train – nearby objects seem to move quickly in the opposite direction while more distant objects move more slowly (though still in the opposite direction)?

Extremely distant objects, such as the moon, appear not to move at all. The difference in the speeds with which these objects appear to move provides a cue to their distance from us and is termed ***motion parallax***.

STROBOSCOPIC MOTION

We perceive motion when an object's image moves across our retina, but we can also see motion even when nothing actually moves on our retina.

Stroboscopic motion occurs when lights flash in quick succession in a dark space, making it look like one light is moving to the other. This idea is important in modern technology, like movies, which are just a series of still images shown one after the other. As we watch, the slight changes between frames make it seem like there's smooth, continuous motion.

REAL MOTION

Our eyes can detect real movement of objects as they move through space. However, understanding this motion is complex. Sometimes, the movement we see is due to our eyes moving over a still scene (like when reading), and other times it's from objects moving (like a bird flying by).

We can also perceive motion differently: a stationary object can seem to move if we follow it with our eyes, while a moving background can make a still object appear to move.

We are better at detecting motion against a detailed background than a plain one. Patterns of movement can help us recognize shapes and identify objects.

For example, researchers found that people can identify human activities just from a few points of light moving, even recognizing friends or determining gender based on minimal visual information.

This phenomenon occurs when we become less sensitive to certain types of motion after watching them for a while. For example, if we look at upward-moving stripes, we may not notice upward motion as much afterward, but downward motion remains unaffected. We usually don't realize this loss of sensitivity, but we do notice an after-effect.

For instance, after staring at a waterfall and then looking at a cliff, the cliff might seem to move upward, opposite to the original motion.

The brain detects real motion using specific cells in the visual cortex. These cells respond to different speeds and directions of movement. Research shows that

some cells are tuned to particular motions, including those moving toward us, which is helpful for survival. This specialization helps explain both selective adaptation and the motion aftereffect.

RECOGNITION

The perceptual system needs to **determine** not only where relevant objects are in the scene, but also **what** they are. This is the process of recognition.

Recognizing an object, in turn, entails several subproblems.

- First, we have to acquire fundamental or primitive features of information from the environment and assemble them properly.
- Second we have to figure out what the objects we're seeing actually are.

FUNCTIONS OF RECOGNITION

Global-to-Local Processing

When we see an object, like in the example of a loaf of bread or a mailbox, our visual system uses the context of the scene to help identify it. This process starts with **global processing**, where we understand the overall scene, followed by **local processing**, where we use that context to identify individual objects. For instance, if the scene looks like a street, we would see the object as a mailbox; if it looks like a kitchen, we would see it as bread. The principle of similarity involves grouping together elements that are

Feature Integration Theory

Illusory conjunctions show that our visual system first processes different features, like shape and color, separately. Then, in a later stage, it combines these features into a single perception.

This idea comes from Anne Treisman and is key to understanding how we perceive objects.

Di Lollo and colleagues (2001) highlight problems with feature integration theory and propose an alternative called **dynamic control theory**. This theory suggests that instead of a fixed system that processes only a few basic visual features, we have a flexible system that can quickly change its setup to handle different tasks. It's like how a computer can rearrange its connections to perform various functions. In this view, the system adapts for each task instead of relying on multiple separate systems for every possible job.

DETERMINING WHAT AN OBJECT IS

Understanding how we recognize objects involves two processes: **attentive** and **preattentive processing**.

The key challenge is figuring out which visual features belong to the same object and then identifying what that object is.

Shape is crucial for recognition. For example, we can identify a cup regardless of its size, color, texture, or tilt, but if its shape is obscured, we may not recognize it at all. Research shows we can recognize objects from simple line drawings just as well as from detailed photos, highlighting the importance of shape.

Feature Detectors

Researchers, including Nobel Prize winners David Hubel and Torstein Wiesel, discovered different types of cells in the visual cortex that respond to specific features:

Simple Cells: Respond to lines at particular angles and positions.

Complex Cells: Respond to lines at specific angles but can detect them anywhere in their receptive field.

Feature Detectors

Researchers, including Nobel Prize winners David Hubel and Torstein Wiesel, discovered different types of cells in the visual cortex that respond to specific features:

Hypercomplex Cells: Respond to lines of a certain length and orientation, with responses decreasing if the line is too long. These cells are called **feature detectors** and act as building blocks for shape perception. They help us identify basic shapes, but this approach works better for simple shapes (like letters) than for complex ones (like animals or furniture).

Relations Among Features: Describing a shape involves more than just listing its features; it also requires understanding how those features relate to each other. For example, a right angle and a diagonal line need to be arranged in a specific way to form a triangle. Similarly, a Y-intersection and a hexagon must be aligned to create a cube. This idea connects to Gestalt psychology, which states that "the whole is different from the sum of its parts."

When features are combined correctly, new perceptual qualities emerge that can't be understood just by looking at the individual parts. These new features can influence how we detect and search for shapes.

Later Stages of Recognition: After describing an object's shape, the next step is matching it to shape descriptions stored in memory to identify the object.

Simple Networks: Research often focuses on simple shapes like letters and words. One model suggests that letters are stored based on certain features in a network of connections, called connectionist models. This idea aligns with how interconnected neurons in the brain might work. In this network, the bottom level includes basic features (like lines and curves), while the top level contains the letters. Each feature and letter is called a node. A connection from a feature to a letter means that feature is part of that letter. When a feature is activated, it sends signals to the letter, similar to how electrical impulses travel in the brain.

BOTTOM-UP PROCESS

This approach involves analyzing sensory information starting from the basic features and building up to a complete perception. It begins with the raw data from the environment (like shapes, colors, and textures) and combines them to form a full understanding of an object or scene. Essentially, perception starts with input from the senses.

TOP-DOWN PROCESS

In contrast, top-down processes rely on prior knowledge, expectations, and context to interpret sensory information. This means our brain uses existing beliefs and experiences to shape our perception, influencing how we understand and interpret what we see. Essentially, perception starts with our mental framework and expectations.

ABSTRACTION

A nice example of how perception of a real-life object is schematized in this manner was reported by Carmichael, Hogan, & Walter (1932), who presented ambiguous stimuli such as those shown in Figure 5.23. middle column, labeled 'Stimulus Figures', along with a label that told the observers what they were looking at.

For instance, while viewing the stimulus in the top middle column, some observers were told that they were looking at 'curtains in a window' while others were told that were looking at 'a diamond in a rectangle'. The observers were later asked to reproduce what they had seen.

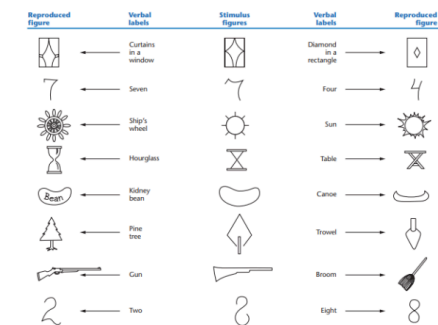


Figure 5.23 Verbal Labels and Abstraction. Carmichael, Hogan, and Walter (1932) showed people the kind of ambiguous stimuli shown here.

THE NATURE OF CONSTANCIES

COLOR & BRIGHTNESS CONSTANCIES

Color Constancy

When you look at a red piece of paper, you see it as red regardless of whether it's lit by a warm bulb or bright sunlight. This happens because our eyes and brain interpret the light reflected off the paper (the available wavelengths) in a way that identifies the paper's true color (the reflectance characteristic) despite different lighting conditions.

The process involves two steps: Light from a source (like a bulb or the sun) hits the paper. The paper reflects specific wavelengths more than others (mainly red).

So, even with different light sources providing various wavelengths, your brain can figure out the paper's true color by separating the source wavelengths from the reflected ones.

Brightness Constancy

This concept is similar to color constancy. It means that an object's perceived lightness remains consistent, even if the light shining on it changes a lot. For example, a black velvet shirt looks black in both sunlight and shadow, even though it reflects much more light in the sun.

An example of this is the checkerboard illusion, where two squares that appear different in color are actually the same shade of gray. Your brain adjusts your perception based on context, rather than just the light that reaches your eyes. In both cases, our visual system makes educated guesses about the true properties of objects, allowing us to perceive them consistently across varying conditions.

ILLUSION

In the Haunted House at Disneyland, you might see masks that appear to swivel and follow you as you walk by. It feels like they're moving, but they're actually stationary. If you turned on the lights, you'd realize you're looking at the inside of the masks, not the outside. Your brain assumes you're viewing the masks from the outside, leading you to perceive them as rotating when you move. You can test this by holding a mask with the inside facing you; it will seem like the face is coming toward you, especially if you cover one eye. This is an example of an illusion, where your perception doesn't match reality. It occurs because your visual system tries to maintain constancy,



The moon looks much larger when it is near the horizon than when it is high in the sky, even though in both locations its retinal image is the same size.

assuming you're seeing faces from the outside.

The moon illusion occurs when the moon appears much larger near the horizon than when it's high in the sky. Although the moon's image is slightly larger when it's directly overhead, our perception makes it seem 50%

The Ames room illusion involves a specially shaped room that appears normal through a peephole. A boy standing in one corner looks much smaller than when he stands in the opposite corner, even though it's the same boy. This happens because the left corner of the room is almost twice as far away as the right corner.



Figure 5.28 The Ames Room. A view of how the Ames room looks to an observer viewing it through the peephole. The sizes of the boy and the girl depend on which one is in the left-hand corner of the room and which one is in the right-hand corner. The room is designed to wreak havoc with our perceptions. Because of the perceived shape of the room, the relative sizes of the boy and the girl seem impossibly different.

ILLUSION

Research shows that there are three interacting systems in the brain that manage attention:

Arousal System: This system keeps us alert. Brain imaging studies show increased activity in the right parietal and frontal areas when people focus on tasks. These areas are linked to norepinephrine, a neurotransmitter involved in arousal.

Posterior System: This system helps us orient attention to specific stimuli, selecting objects based on their features like location, shape, and color. It primarily involves the parietal and temporal cortex at the back of the brain.

Anterior System: This system controls how and when we use features for selection. Located in the frontal cortex, it guides the selection process, often referred to as the "CEO" of selective attention

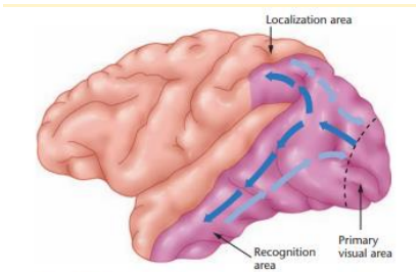
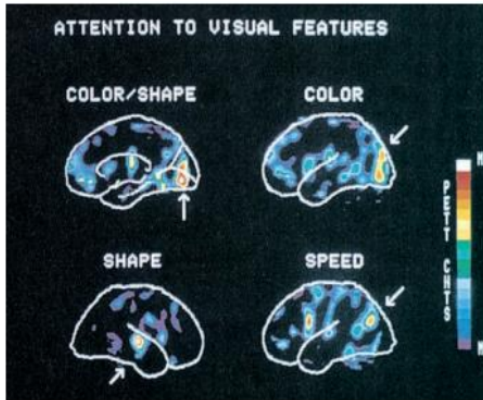


Figure 5.31 Two Cortical Visual Systems. The arrows going from the back of the brain toward the top depict the localization system; the arrows going from the back toward the bottom of the brain depict the recognition system. (Alter Mortimer Mishkin, Leslie G. Ungerleider, & Kathleen A. Macko (1983), "Object Vision and Spatial Vision: Two Cortical Pathways," *Trends in Neuroscience*, 6 (10):414-417.)

PERCEPTUAL DEVELOPMENT PREFERENTIAL LOOKING METHOD

Studying infant perception is challenging because infants can't talk or follow instructions. Researchers look for behaviors that indicate what infants can perceive.

One method is the **preferential looking method**. In this technique, two stimuli are shown to the infant side by side. A hidden experimenter observes which stimulus

the infant looks at more and records the viewing time with a camera. If the infant consistently looks at one more than the other, it suggests they can distinguish between them.

HABITUATION METHOD

Another technique is the habituation method. Infants initially focus on new objects but quickly become bored with them. If an object is replaced with a new one, the amount of time the infant looks at it reveals their perception. If the new object looks similar to the first, they'll spend less time looking at it; if it looks different, they'll look more.

Using these methods, psychologists have studied various perceptual abilities in infants, such as recognizing shapes, depth perception, and maintaining constancy in how objects appear.

PERCEIVING FORMS

At about one month old, infants can see larger patterns but struggle with fine details. Their acuity improves rapidly over the first six months and reaches adult levels by 1 to 2 years.

Studies show that one-month-olds can distinguish basic features but not fine details, making it hard to see facial expressions. By three months, their acuity improves, enabling them to recognize expressions, which may explain why they seem more socially engaged.

Infants also show sensitivity to shapes early on. For instance, even three-day-old infants focus on the edges of a triangle rather than looking randomly. They are particularly attracted to shapes resembling human faces, preferring more complex visuals. By three months, infants can recognize their mother's face in photographs, indicating a developing ability to distinguish familiar features.

PERCEIVING DEPTHS

Depth perception starts to develop around three months and becomes more established by six months. By four months, infants can reach for the closer of two objects using binocular disparity (the slight difference in images between their two eyes). A month or two later, they begin to use monocular depth cues, like size and shading, to judge distance.

Further evidence comes from the **visual cliff** experiment. This setup involves a board over glass with a patterned surface on one side and a drop on the other. When a crawling infant (6-7 months old) is placed on the board, covering one eye

to remove binocular cues, they will crawl toward their mother if she is on the shallow side but will avoid the deep side. This indicates that by the time infants can crawl, their depth perception is fairly developed.

PERCEIVING CONSTANCIES

Perceptual constancies, like shape and size constancy, begin to develop in the first few months of life. For example, in a size constancy experiment, four-month-old infants were shown one teddy bear and then a second bear. The second bear was either the same size but farther away (creating a different retinal image) or a different size.

If infants had developed size constancy, they would recognize the first bear and look at the second bear (same size) less than the larger one. This is exactly what happened, indicating that they could perceive size constancy.

Lesson 6: Consciousness

CONSCIOUSNESS: is the individual's current awareness of external and internal stimuli – that is, of events in the environment and of body sensations, memories, and thoughts.

We are conscious not only when we **monitor** our environment (internal and external) but also when we seek to **control** ourselves and our environment.

MONITORING: Our consciousness selectively pays attention to certain stimuli, often responding to changes around us.

Our attention prioritizes certain events, especially those crucial for survival.

For example, if you're hungry or in pain, those feelings will dominate your focus, making it hard to think about anything else.

PRECONSCIOUS memories is used to refer to memories that are accessible to consciousness.

They include specific memories of personal events as well as the information accumulated over a lifetime, such as your knowledge of the meaning of words, the layout of the streets of a city, or the location of a particular country.

UNCONSCIOUS contains some memories, impulses, and desires that are not accessible to consciousness. Freud believed that some emotionally painful memories and wishes are repressed – that is, diverted to the unconscious, where they may continue to influence our actions even though we are not aware of them.

AUTOMATICITY & DISSOCIATION

Skills like driving a car or riding a bike, once they are well learned, no longer require our attention. They become automatic and allow a relatively uncluttered consciousness to focus on other matters.

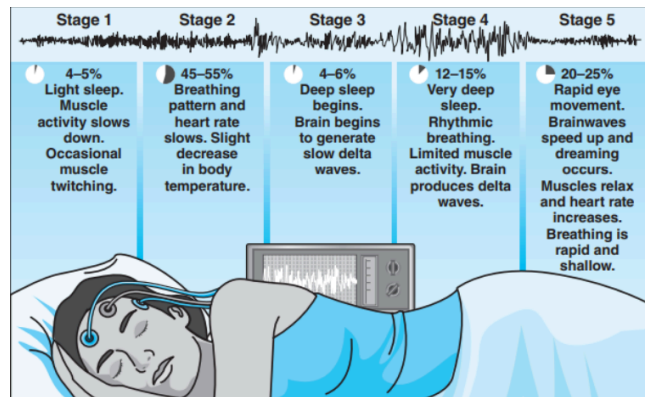
Such **automatic processes (automaticity)** may have negative consequences on occasion – for example, when a driver cannot remember landmarks passed along the way. The more automatic an action becomes, the less it requires conscious control.

The French psychiatrist Pierre Janet (1889) originated the concept of **dissociation**, in which under certain conditions some thoughts and actions become split off, or dissociated, from the rest of consciousness and function outside of awareness.

Dissociation differs from Freud's concept of repression because the dissociated memories and thoughts are accessible to consciousness.

SLEEP & DREAMS

Sleep is a complex physiological process that involves several stages, which can be categorized into two main types: Non-Rapid Eye Movement (NREM) sleep and Rapid Eye Movement (REM) sleep. A typical sleep cycle lasts about 90 to 120 minutes and includes five distinct stages.



Stage 1: NREM Sleep (Light Sleep)

Duration: Lasts about 5 to 10 minutes.

This is the **transition phase** from wakefulness to sleep. Muscle activity decreases, and eye movements slow. It is a light sleep stage slow delta waves, this stage is essential for tissue repair and immune function. Sleepwalking and night terrors can occur during this deep sleep phase

Stage 2: NREM Sleep (Moderate Sleep)

Duration: Typically lasts around 20 minutes.

Heart rate and breathing become more regular, and body temperature drops. Eye movements stop, and individuals are less aware of their surroundings.

Stage 3: NREM Sleep (Deep Sleep)

Duration: Lasts about 20 to 40 minutes.

This is the **deepest stage of NREM sleep**. It becomes very difficult to awaken someone during this phase, which is crucial for physical recovery and growth. Muscle relaxation reaches its peak, and breathing slows significantly.

Stage 4: NREM Sleep (Deeper Sleep)

Duration: Often considered part of Stage 3 in modern classifications.

Similar to Stage 3, this stage involves even deeper sleep where awakening is very difficult. Tissue repair and hormone release occur during this time, contributing to overall health.

Stage 5: REM Sleep

Duration: Typically begins about 90 minutes after falling asleep and lasts for varying lengths throughout the night, increasing with each cycle.

This stage is associated with **vivid dreaming**. Eye movements are rapid behind closed eyelids, and breathing becomes irregular. The heart rate increases, and the body experiences temporary paralysis of major muscle groups (REM atonia) to prevent acting out dreams.

SLEEP THEORY

OPPONENT-PROCESS MODEL OF SLEEP AND WAKEFULNESS

According to this model, the brain possesses two opponent processes that govern the tendency to fall asleep or remain awake.

They are the **homeostatic sleep drive** and the **clock-dependent alerting process**.

Homeostatic Sleep Drive: process accumulates the need for sleep based on how long we've been awake.

For example, after a long day of work or study, you may feel increasingly tired as the hours pass. If you only get a few hours of sleep one night, the drive to sleep becomes much stronger the next day, making it hard to stay awake during meetings or while driving.

Clock-Dependent Alerting Process: this process is regulated by our biological clock and keeps us alert at specific times.

For example, most people feel more awake in the morning after a good night's sleep, largely due to light exposure that signals the clock to suppress melatonin production. As evening approaches, the clock's influence wanes, leading to increased sleepiness.

Circadian rhythms are the body's internal clock.

- ✓ Operates on a roughly 24-hour cycle.
- ✓ Regulates various physiological processes, including sleep, hormone release, body temperature, and metabolism. ✓ Dictates when we feel sleepy or alert.
- ✓ Disruptions in circadian rhythms have been linked to various health issues, including sleep disorders, obesity, and cardiovascular diseases.

Melatonin is a hormone produced by the pineal gland in response to darkness.

- ✓ It plays a significant role in signaling the body that it is time to sleep.
- ✓ It begins to rise in the evening as it gets dark, peaking during the night.
- ✓ In the morning, exposure to light triggers a decrease in melatonin production, promoting wakefulness.

✓ Helps facilitate the onset of sleep by promoting feelings of drowsiness. However, it does not directly cause sleep; rather, it prepares the body for it

SLEEP DISORDER exists when inability to sleep well produces impaired daytime functioning or excessive sleepiness.

Sleep researchers have demonstrated that alertness significantly increases when people who normally get eight hours of sleep get an additional two hours of sleep. Although most people can operate satisfactorily on eight hours of sleep, they are not at their best. Moreover, they lack a safety margin to make up for the times when they get less than that amount of sleep. The loss of as little as an hour of sleep increases the likelihood of inattentiveness, mistakes, illness, and accidents (Wolfson & Armitage, 2008).

INSOMNIA refers to complaints about a symptom, namely, dissatisfaction with the amount or quality of one's sleep. A perplexing feature of insomnia is that people seem to overestimate the amount of sleep lost. One study that monitored the sleep of people who identified themselves as insomniacs found that only about half were actually awake as much as 30 minutes during the night (Carskadon, Mitler, & Dement, 1974).

The problem may be that some people remember only time spent awake and think they have not slept because they have no memory of doing so.

A person with **NARCOLEPSY** has recurring, irresistible attacks of drowsiness and may fall asleep at any time – while writing a letter, driving a car, or carrying on a conversation. If a student falls asleep while a professor is lecturing, that may be perfectly normal, but a professor who falls asleep while lecturing may be suffering from narcolepsy.

Such episodes can occur several times a day in severe cases and last from a few seconds to 30 minutes. Narcoleptics have difficulty keeping jobs because of their daytime sleepiness and are potentially dangerous if they are driving a car or operating machinery when an attack occurs.

In **APNEA**, the individual stops breathing while asleep. There are two reasons for apnea attacks. One reason is that the brain fails to send a 'breathe' signal to the diaphragm and other breathing muscles, thus causing breathing to stop.

The other reason is that muscles at the top of the throat become too relaxed, allowing the windpipe to partially close and thereby forcing the breathing muscles to pull harder on incoming air, which causes the airway to completely collapse.

During an **apnea episode**, the oxygen level of the blood drops dramatically, leading to the secretion of emergency hormones. This reaction causes the sleeper to awaken in order to begin breathing again.

Sleep apnea is common among older men. Sleeping pills, which make arousal more difficult, lengthen periods of apnea (during which the brain is deprived of oxygen) and may prove fatal.

DREAMS

How long do dreams last?

Some dreams seem almost instantaneous.

The length of a typical dream can be inferred from a REM study in which participants were awakened and asked to act out what they had been dreaming (Dement & Wolpert, 1958). The time it took them to pantomime the dream was almost the same as the length of the REM sleep period, suggesting that the incidents in dreams commonly last about as long as they would in real life

Do people know when they are dreaming?

The answer to this question is 'sometimes yes'. People can be taught to recognize that they are dreaming, yet their awareness does not interfere with the spontaneous flow of the dream.

For example, people have been trained to press a switch when they notice that they are dreaming (Salamy, 1970). Some people have **lucid dreams**, in which events seem so normal (lacking the bizarre and illogical character of most dreams) that the dreamers feel as if they are awake and conscious.

Can people control the content of their dreams?

Psychologists have demonstrated that some control of dream content is possible by changing people's environment or making suggestions to people in the presleep period and then analyzing the content of their dreams.

In one study, researchers tested the effect of wearing red goggles for several hours before going to sleep. Although the researchers made no actual suggestion and the participants did not understand the purpose of the experiment, many participants reported that their visual dream worlds were tinted red (Roffwarg, Herman, Bower Anders, & Tauber, 1978).

THEORY OF DREAMS

- One of the earliest theories of the function of dreams was suggested by Sigmund Freud.
- In *The Interpretation of Dreams (1900)*, Freud proposed that dreams provide a 'royal road to a knowledge of the unconscious activities of the mind'.

- He believed that dreams are a disguised attempt at wish fulfillment.

- **Dreams of Flying:** Freud suggested that flying dreams often symbolize sexual desire or a wish for freedom and escape from constraints in waking life.

- **Dreams of Losing Teeth:** Such dreams may indicate anxiety about loss, aging, or feelings of powerlessness. They can also reflect concerns about appearance and self-image

- **Dreams Involving Death:** Freud posited that dreams about death do not necessarily indicate a desire for someone to die. Instead, they might reflect repressed wishes related to the dreamer's relationships or unresolved feelings towards the deceased

- **Dreams About Being Chased:** These dreams often represent an avoidance of confronting issues in waking life. The pursuer can symbolize repressed fears or desires that the dreamer is reluctant to face

Key Concepts in Freud's Dream Interpretation

Manifest vs. Latent Content

- Freud distinguished between the manifest content (the literal storyline of the dream) and latent content (the hidden psychological meaning).
- The goal of interpretation is to uncover this latent content, revealing repressed desires and conflicts.

Wish Fulfillment

Central to Freud's theory is the idea that dreams are expressions of unfulfilled wishes from the unconscious mind, often disguised to protect the dreamer from confronting uncomfortable truths.

Free Association

To interpret dreams, Freud employed free association, where individuals express thoughts related to dream elements without censorship, helping reveal underlying meanings.

Evans views

- Sleep, particularly REM sleep, as a period when the brain disengages from the external world and uses this 'off-line' time to sift through the information that was input during the day and to incorporate it into memory (see also Crick & Mitchinson, 1983).
- We are not consciously aware of the processing that occurs during REM sleep. During dreaming, however, the brain comes back online for a brief time, and the conscious mind observes a small sample of the modification and reorganization of information that is taking place.
- The brain attempts to interpret this information the same way it would interpret stimuli coming from the outside world,

giving rise to the kinds of pseudo-events that characterize dreams. Evans views

- According to Evans, dreams are nothing more than a small subset of the vast amount of information that is being scanned and sorted during REM sleep, a momentary glimpse by the conscious mind that we remember if we awaken.
- Evans believes that dreams can be useful in making inferences about the processing that occurs during REM sleep but that they represent an extremely small sample on which to base such inferences.

MEDITATION refers to achieving an altered state of consciousness by performing certain rituals and exercises, such as controlling and regulating breathing, sharply restricting one's field of attention, eliminating external stimuli, assuming yogic body positions, and forming mental images of an event or symbol.

- The result is a pleasant, mildly altered subjective state in which the individual feels mentally and physically relaxed.
- After extensive practice, some individuals may have mystical experiences in which they lose self-awareness and gain a sense of being involved in a wider consciousness, however defined.

- Two common meditation techniques are

opening-up meditation, in which the person clears his or her mind in order to receive new experiences, and

concentrative meditation, in which the benefits are obtained by actively attending to some object, word, or idea.

HYPNOSIS

• The person enters the hypnotic state when the conditions are right; the hypnotist merely helps set the conditions. The following changes are characteristic of the hypnotized state:

- **Planfulness ceases.** A deeply hypnotized individual does not like to initiate activity and would rather wait for the hypnotist to suggest something to do.
- **Attention becomes more selective than usual.** A person who is told to listen only to the hypnotist's voice will ignore any other voices in the room.
- **Enriched fantasy is readily evoked.** People may find themselves enjoying experiences at places that are distant in time and space.
- **Reality testing is reduced and reality distortion accepted.** A person may uncritically accept hallucinated experiences (for example, conversing with an imagined

person who is believed to be sitting in a nearby chair) and will not check to determine whether that person is real.

- **Suggestibility is increased.** An individual must accept suggestions in order to be hypnotized at all, but whether suggestibility is increased under hypnosis is a matter of some dispute. Careful studies have found some increase in suggestibility following hypnotic induction, though less than is commonly supposed (Ruch, Morgan, & Hilgard, 1973).
- **Posthypnotic amnesia is often present.** When instructed to do so, an individual who is highly responsive to hypnotism will forget all or most of what took place during the hypnotic session. When a prearranged release signal is given, the memories are restored.

HYPNOSIS as THERAPY

- Hypnosis is used to treat a number of physiological and psychological disorders (see reviews by Lynn, Kirsch, Barabasz, Cardena, & Patterson, 2000; Pinnell & Covino, 2000).
- In medicine, hypnosis has been used to reduce anxiety related to medical and dental procedures, asthma, gastrointestinal diseases, and the nausea associated with cancer treatment and used for general pain management.
- In treatment for psychological disorders, hypnosis has been used to help people overcome addictions.
- The most controversial use of hypnosis is in the treatment of emotional problems.
- Proponents of the therapeutic use of hypnosis suggest that it allows therapists to uncover repressed memories that are behind psychological problems, but several researchers caution against the use of hypnosis in psychotherapy (see Kihlstrom, 2007).
- They argue that hypnosis amounts to no more than a therapist planting false memories in the minds of clients, including memories of horrendous abuse experiences that never happened.

Mechanisms of Hypnosis in Therapy

Induction of a Hypnotic State

- Hypnosis begins with an induction process where the therapist guides the individual into a state of deep relaxation and focused attention.
- This is achieved through verbal cues, repetition, and imagery, helping the person block out external distractions and concentrate inwardly on their thoughts and feelings.

Heightened Suggestibility

- In this relaxed state, individuals become more open to suggestions.

- The therapist can provide specific guidance aimed at changing behaviors, perceptions, or sensations.
- For example, suggestions may be made to alleviate pain, reduce anxiety, or modify habits such as smoking or overeating

Exploration of the Unconscious

- Hypnosis allows individuals to access memories or feelings that may be repressed or hidden from their conscious awareness.
- This exploration can help uncover psychological roots of certain issues, such as trauma or anxiety disorders.
- By bringing these elements to light, therapists can address them more effectively during therapy sessions

Behavioral Change and Symptom Relief

- The suggestions made during hypnosis can lead to behavioral changes and symptom relief.
- For instance, patients may learn techniques for managing pain or anxiety that they can use outside of therapy sessions.
- This aspect makes hypnosis a valuable adjunct to other therapeutic approaches

PSYCHOACTIVE DRUGS refers to drugs that affect behavior, consciousness, and/or mood.

- These drugs include not only illegal 'street' drugs such as heroin and marijuana but also legal drugs such as tranquilizers and stimulants.
- Familiar, widely used drugs such as alcohol, nicotine, and caffeine are also included in this category.

DEPRESSANTS are substances that slow down the central nervous system (CNS), leading to a calming effect on the brain and body. They can induce relaxation, reduce anxiety, and promote sleep.

Common Examples

Alcohol: Widely consumed for its relaxing effects, but excessive use can lead to impaired coordination and judgment.

Benzodiazepines: Medications like Valium and Xanax are used to treat anxiety and insomnia but can be addictive.

Opioids: While primarily analgesics, opioids like morphine and heroin also have depressant effects on the CNS.

ILLICIT DRUGS are illegal substances that are often used recreationally for their psychoactive effects. Their legal status varies by country.

Common Examples:

Cocaine: A powerful stimulant that can lead to intense euphoria but has high potential for addiction.

Methamphetamine (Ice): A potent stimulant that increases energy and alertness but can cause severe health issues.

MDMA (Ecstasy): Known for its stimulant and hallucinogenic properties, often used in party settings.

OPIATES are a class of drugs derived from the opium poppy or synthetically produced. They are primarily used for pain relief but can also produce feelings of euphoria.

Common Examples

Heroin: An illegal opiate that provides intense pleasure but has a high risk of addiction and overdose.

Prescription opioids: Such as oxycodone

STIMULANTS increase the activity of the CNS, leading to enhanced alertness, attention, and energy levels. They can also elevate mood temporarily.

Common Examples

Caffeine: The most widely consumed stimulant found in coffee and tea.

Nicotine: Found in tobacco products; it stimulates the release of dopamine.

Amphetamines: Prescription medications for ADHD (e.g., Adderall) that increase dopamine levels in the brain.

DRUG DEPENDENCE has three key characteristics:

(1) tolerance – with continued use, the individual must take more and more of the drug to achieve the same effect;

(2) withdrawal – if use of the drug is discontinued, the person experiences unpleasant physical and psychological reactions; and

(3) compulsive use – the individual takes more of the drug than intended, tries to control his or her drug use but fails, and

Lesson 7: Learning & Conditioning

COGNITIVE BEHAVIOR THERAPY - has its roots in behavior therapy, a general term referring to treatment methods based on the principles of learning and conditioning.

- The effectiveness of these forms of therapy suggests that some of the behaviors involved in panic disorders seem to be learned responses, which may be unlearned in the therapy

LEARNING is defined as a relatively permanent change in behavior that occurs as a result of experience. Behavior changes that are due to maturation or to temporary conditions (such as fatigue or drug-induced states) are not included.

NON-ASSOCIATIVE LEARNING involves learning about a single stimulus, and it includes habituation and sensitization.

HABITUATION is a type of non-associative learning that is characterized by a decreased behavioral response to an innocuous stimulus.

- For example, the sound of a horn might startle you when you first hear it. But if the horn toots repeatedly in a short time, the amount that you are startled by each sound progressively decreases.

SENSITIZATION is a type of non-associative learning whereby there is an increase in a behavioral response to an intense stimulus.

- Sensitization typically occurs when noxious or fearful stimuli are presented to an organism.
- For example, the acoustic startle response to a horn is greatly enhanced if you enter a dark alley right before the loud sound.

ASSOCIATIVE LEARNING is much more complicated than nonassociative learning, because it involves learning relationships among events.

- It includes classical conditioning and instrumental conditioning

CLASSICAL CONDITIONING is a learning process in which a previously neutral stimulus becomes associated with another stimulus through repeated pairing with that stimulus.

- The food dish was originally a neutral stimulus: it did not lead to a salivation response.

- However, the food itself does cause salivation when it is placed in the mouth of the dog. After food and food dish are presented together ('paired') repeatedly, the mere sight of the food dish is enough to cause a salivation response. The dog has learned that two events (the sight of a food dish, and the taste of food in the mouth) are associated.

UNCONDITIONED RESPONSE

- In Pavlov's basic experiment, a tube is attached to the dog's salivary gland so that the flow of salivation can be measured.

- Then the dog is placed in front of a pan into which meat powder can be delivered automatically. The dog is hungry and when meat powder is delivered, salivation is registered.

- This salivation is an unconditioned response (UR): an unlearned response elicited by the taste of the food.

UNCONDITIONED STIMULUS (US) is a stimulus that automatically elicits a response without prior conditioning.

NEUTRAL STIMULUS (NS) does not cause salivation – though it may of course lead to other responses by the dog (such as tail wagging, jumping, and barking).

CONDITIONED STIMULUS

- Repeatedly pair the presentation of the food with the light:
- First the light is turned on, then some meat powder is delivered and the light is turned off. This is called the conditioning phase of the experiment.

- After a number of such paired presentations, the dog will salivate in response to the light even if no meat powder is delivered.

- This teaches us that the dog has learned that the two events (food and light) are associated – the light has become a conditioned stimulus (CS), causing a conditioned response.

CONDITIONED RESPONSE (CR) is a learned reaction that occurs in response to a previously neutral stimulus that has been paired with an unconditioned stimulus (US). This concept is central to classical conditioning, a learning process first described by Ivan Pavlov through his experiments with dogs.

DRUG TOLERANCE refers to the decreased effect of a drug when it is taken repeatedly. In other words, increased doses are required to produce the same effects that were initially produced with smaller doses.

- Research has shown that classical conditioning contributes to drug tolerance. These insights are important, not in the last place because drug tolerance is important in drug addiction.

- Habitual coffee drinkers will develop a degree of tolerance to caffeine: with repeated intake, the effect of the caffeine (which is to raise blood pressure) is attenuated.

ACQUISITION refers to the process through which a conditioned response (CR) is developed through repeated pairings of a conditioned stimulus (CS) with an unconditioned stimulus (US).

In Pavlov's experiment:

- The unconditioned stimulus (US) was food, which naturally elicited salivation (the unconditioned response, UR) from the dogs.
- The conditioned stimulus (CS) was a bell, which initially did not elicit any response from the dogs.
- Through repeated pairings of the bell (CS) with the presentation of food (US), the dogs gradually learned to salivate in response to the bell alone. This learned response became known as the conditioned response (CR).

LEARNING CURVE represents how quickly and effectively learning occurs over time or trials. In Pavlov's case, this can be illustrated through several key points:

Initial Rapid Learning: during the first few trials, the dogs showed significant increases in salivation in response to the bell as they began to associate it with food.

Diminishing Returns: as conditioning progressed, each additional pairing resulted in smaller increases in salivation. This reflects a diminishing returns curve where initial gains are substantial, but as proficiency increases, additional learning becomes less pronounced.

Plateauing: eventually, after sufficient pairings, the dogs reached a point where they consistently salivated at the sound of the bell. This plateau indicates that they had fully acquired the conditioned response, and further pairings would yield little to no additional learning.

EXTINCTION: The process by which a conditioned response (CR) diminishes or disappears when the conditioned stimulus (CS) is repeatedly presented without the unconditioned stimulus (US).

The bell was repeatedly without presenting food, the dogs eventually stopped salivating in response to the bell. This decrease in the conditioned response is known as extinction. It demonstrates that the learned association between the CS and US can weaken over time when the reinforcement (US) is no longer presented, highlighting the importance of the relationship between stimuli in learning.

SPONTANEOUS RECOVERY

- Spontaneous recovery was first demonstrated by Ivan Pavlov in his famous experiments with dogs. Initially, Pavlov conditioned dogs to salivate in response to the sound of a bell by pairing it with the presentation of food. Over time, the dogs learned to associate the bell with food and would salivate just at the sound of the bell.

- After the conditioning, Pavlov would ring the bell without presenting food, leading to extinction of the conditioned response—eventually, the dogs stopped salivating in response to the bell.
- However, after a period of time without any exposure to the bell, Pavlov found that when he rang the bell again, the dogs would sometimes salivate. This was an example of spontaneous recovery, demonstrating that the learned behavior was not completely erased but could return after a rest period.

RESPONSE GENERALIZATION, as demonstrated by Ivan Pavlov, refers to the tendency for a conditioned response to occur in response to stimuli that are similar, but not identical, to the original conditioned stimulus.

- In Pavlov's experiments, after conditioning the dogs to salivate at the sound of a specific bell, he found that the dogs would also salivate in response to other bells that were similar in tone or pitch.
- For example, if the dogs were conditioned with a bell of a certain frequency, they might still salivate when they heard a bell of a slightly different frequency.
- This phenomenon shows that the conditioned response can extend beyond the specific stimulus used during training, indicating a broader range of responses based on similarities in stimuli.

STIMULUS DISCRIMINATION a process that is complementary to generalization is discrimination. Stimulus generalization is a reaction to similarities, and stimulus discrimination is a reaction to differences.

- Instead of just one tone during conditioning, now there are two. The lowpitched tone, CS1, is always followed by a mild forefinger shock, and the highpitched tone, CS2, is not. Initially, participants show a GSR to both tones. During the course of conditioning, however, the amplitude of the conditioned response to CS1 gradually increases while the amplitude of the response to CS2 decreases. Through this process of differential reinforcement, participants are conditioned to discriminate between the two tones. It is important to note that the presentation of CS2 leads to a suppression of the response (lowered GSR).

SECOND-ORDER CONDITIONING expands the reach of classical conditioning, especially in humans. Most conditioned responses arise this way, where a biologically

significant stimulus (like food or pain) is paired with another stimulus.

- For example, cancer patients receiving chemotherapy often feel nauseated due to the toxic treatment. If a child is given ice cream before their session to ease anxiety, the ice cream can become associated with nausea. Later, if the child sees toys paired with ice cream, they might start feeling nauseous just at the sight of the toys, demonstrating second-order conditioning.

TEMPORAL CONTIGUITY, a key concept in Pavlov's classical conditioning, refers to the principle that for conditioning to occur, the unconditioned stimulus (US) and the conditioned stimulus (CS) must be presented close together in time.

- This means that the timing of the pairing is crucial; the CS should be presented just before or simultaneously with the US to establish a strong association.

- For example, if a bell (CS) is rung just before food (US) is presented to a dog, the dog learns to associate the sound of the bell with the arrival of food, leading to salivation in response to the bell alone.

CONTINGENCY refers to the predictive relationship between the conditioned stimulus (CS) and the unconditioned stimulus (US). It emphasizes that the CS must reliably predict the occurrence of the US for effective conditioning to take place.

- For example, if a bell (CS) is consistently followed by food (US), the dog learns to associate the bell with the food. However, if the bell does not reliably lead to food (e.g., it sometimes rings without food being presented), the association weakens. Thus, a strong contingency enhances the learning process in classical conditioning.

LEARNED TASTE AVERSION is a form of classical conditioning where an individual develops a strong aversion to a specific taste after a negative experience, typically involving nausea or illness.

- For example, if someone eats a particular food and then becomes sick, they may subsequently avoid that food, even if it wasn't the cause of their illness. This form of conditioning is unique because it can occur after just one pairing of the taste (conditioned stimulus) with the feeling of nausea (unconditioned stimulus), and the association can last for a long time. It's thought to be an adaptive mechanism that helps organisms avoid potentially harmful foods in the future.

INSIGHT

Thorndike concluded that animals, unlike humans, do not learn by developing some **insight** (an understanding of the

situation, leading to the solution of a problem) – rather, they learn through trial-and-error.

TRIAL & ERROR LEARNING

- It may sound as if the cat is acting intelligently, but Thorndike argued that there is little 'intelligence' operating here. There is no moment in time when the cat seems to have an insight about the solution to its problem.

- Instead, the cat's performance improves gradually over a series of trials. The cat appears to be engaging in trial-and-error learning, and when a reward immediately follows one of those behaviors, the learning of the action is strengthened.

LAW OF EFFECT

Thorndike referred to this strengthening as the law of effect. He argued that in instrumental learning, the law of effect selects from a set of random responses only those that are followed by positive consequences.

POSITIVE & NEGATIVE REINFORCEMENT

- In instrumental conditioning, an environmental event that follows behavior produces either an increase or a decrease in the probability of that behavior. Reinforcement refers to the process whereby the delivery of an stimulus increases the probability of a behavior.

- Reinforcement can be done by giving an appetitive stimulus (positive reinforcement) or by the removal of an aversive stimulus (negative reinforcement).

- In other words: there may be either a positive or a negative contingency between the behavior and reinforcement. A positive contingency means that something is given: for example, bar pressing is followed by food. A negative contingency means that something is taken away: for example, bar pressing terminates or prevents shock.

POSITIVE & NEGATIVE PUNISHMENT

- Punishment is the converse of reinforcement: it decreases the probability of a behavior, and consists of the delivery of an aversive stimulus (positive punishment, or simply 'punishment') or the removal of an appetitive stimulus (negative punishment or 'omission training').

- Again, note that there may be either a positive contingency between the behavior and punishment (bar pressing is followed by shock) or a negative contingency (bar pressing terminates or prevents food delivery).

SHAPING is a behavioral technique used in operant conditioning to gradually teach a complex behavior by reinforcing successive approximations of the desired behavior. Instead of waiting for the complete behavior to occur, the trainer rewards small steps that lead toward the final goal.

- For example, to teach a dog to roll over, you might first reward it for lying down, then for rolling onto its side, and finally for completing the roll. By reinforcing each step along the way, the dog learns to perform the entire behavior. Shaping is effective because it breaks down complex behaviors into manageable parts, making it easier for the learner to succeed.

CONDITIONED REINFORCER

- Most of the reinforcers are primary reinforcers because they satisfy basic drives. If instrumental conditioning occurred only with primary reinforcers, it would not occur very often because primary reinforcers are not that common.
- However, virtually any stimulus can become a secondary or conditioned reinforcer, which is a stimulus that has been consistently paired with a primary reinforcer.
- Conditioned reinforcers greatly increase the generality of instrumental conditioning. A minor variation in the typical instrumental conditioning experiment illustrates how conditioned reinforcement works.

FIXED AND VARIABLE RATIO SCHEDULE

Fixed Ratio Schedule: Reinforcement is delivered after a set number of responses. The participant knows exactly when the reward will come, leading to high rates of responding, especially as they approach the required number.

Example: A worker receives a bonus after every fifth sale (FR-5).

Variable Ratio Schedule: Reinforcement is delivered after a variable number of responses, which averages out to a specific number over time. Participants do not know when the next reward will come, leading to a high and steady rate of responding.

Example: A slot machine pays out after an average of every 10 plays, but the exact number varies (e.g., it might pay out on the 7th, 12th, or 10th play).

Fixed Interval Schedule: Reinforcement is provided after a specific amount of time has passed, provided the desired behavior has occurred. After receiving reinforcement, there may be a brief pause in responding until the next interval begins.

Example: A worker receives a paycheck every two weeks (FI-2 weeks). The reinforcement is based on the passage of time.

Variable Interval Schedule: Reinforcement is provided after varying amounts of time, which average out to a specific duration. Behaviors reinforced on a variable interval schedule are often more resistant to extinction

because the individual is unsure when the next reinforcement will occur.

Example: A fisherman catches fish after an unpredictable amount of time (e.g., he might catch one after 5 minutes, then after 15, then after 10).

ESCAPE LEARNING

- We have seen that punishment training can sometimes work to inhibit unwanted behaviors. But aversive events can also be used in the learning of new responses.
- Organisms can learn to make a response to terminate an ongoing aversive event (for example, we may leave a room if there is a painfully loud noise there): this is called escape learning.
- Often, escape learning is followed by avoidance learning; the organism learns to make a certain response to prevent an aversive event from even starting (for example, avoiding a certain room if it was associated with a loud noise in the past).

To study escape and avoidance learning in animals, psychologists have used a device called a shuttle box (see Figure 7.9). The shuttle box consists of two compartments divided by a barrier. On each trial, the animal is placed in one of the compartments. At some point a warning light is flashed, and five seconds later the floor of that compartment is electrified. To get away from the shock, the animal must jump over the barrier into the other compartment.

AVOIDANCE LEARNING

Initially, the rat jumps over the barrier only when the shock starts – this is escape learning. With practice, it learns to jump upon seeing the warning light, thereby avoiding the shock entirely – this is avoidance learning. An analysis of the two stages of escape and **avoidance learning** will shed light on the fact that phobias (fears of specific objects or situations) can be extremely resistant to extinction.

LEARNED HELPLESSNESS is a psychological phenomenon where an individual learns to feel helpless and passive in the face of challenges or adversity, often after experiencing repeated failures or uncontrollable events. This concept was first identified by psychologists Martin Seligman and Steven Maier in the late 1960s through a series of experiments with dogs.

LATENT LEARNING

Edward C. Tolman, an American psychologist, described findings showing latent learning in simple animals: he was able to show that animals were learning, while their behavior did not change in a corresponding way.

COGNITIVE MAP

- In a typical study, rats would learn to run a complicated maze.

- One group of rats was rewarded with food for finding their way through the maze: these rats improved gradually in solving the maze, over the course of a number of days.
- A second group was not rewarded initially, and consequently showed little improvement in solving the maze.
- However, when a reward was introduced for this second group of rats, their performance almost instantly caught up with the performance of the first group.
- This showed that the second group of rats had 'latent knowledge' of the maze, which was only expressed behaviorally once the food was introduced.
- Tolman concluded that a rat running through a complex maze was not learning a sequence of right- and left-turning responses, but rather was developing a cognitive map – a mental representation of the lay-out of the maze (Tolman, 1932).
- And more importantly: that this learning occurs even when the animal is not reinforced.

OBSERVATIONAL LEARNING, also known as social learning or modeling, is a concept introduced by psychologist Albert Bandura.

- It emphasizes the idea that individuals can learn new behaviors by watching others, rather than through direct experience or reinforcement.

SELF-EFFICACY is a key concept developed by psychologist Albert Bandura, referring to an individual's belief in their ability to successfully perform tasks and achieve goals.

- It plays a crucial role in how people approach challenges and pursue their aspirations.

HEBBIAN LEARNING RULE, often summarized as "cells that fire together, wire together," is a principle of synaptic plasticity proposed by psychologist Donald Hebb in his 1949 book "The Organization of Behavior." This rule describes how the strength of connections (synapses) between neurons can be modified based on their activity patterns.

NEURAL PLASTICITY: an impulse is transmitted from one neuron to another by the axon of the sending neuron. Because the axons are separated by the synaptic gap, the sender's axon secretes a neurotransmitter, which diffuses across the synaptic gap and stimulates the receiving neuron.

- The key ideas regarding learning are
 - (1) that a change in the synapse is the neural basis of learning and
 - (2) that the effect of this change is to make the synapse more (or less) efficient.

SYNAPTIC PLASTICITY is the ability of synapses—the connections between neurons—to change their strength

and efficacy in response to increases or decreases in activity.

This process is fundamental to learning and memory and is a key mechanism underlying neural plasticity.

LONG-TERM DEPRESSION (LTD) is a process that leads to a long-lasting decrease in synaptic strength between two neurons.

- It is a key mechanism of synaptic plasticity, complementing long-term potentiation (LTP), and plays a vital role in learning, memory, and the finetuning of neural circuits.

LONG-TERM POTENTIATION (LTP) is a crucial neurophysiological phenomenon characterized by a persistent increase in synaptic strength following high-frequency stimulation of a synapse.

- This process is fundamental to our understanding of learning and memory, as it reflects how experiences can lead to lasting changes in the brain.

YERKES-DODSON LAW, formulated by psychologists Robert M. Yerkes and John Dillingham Dodson in 1908.

- This law states that most tasks are best performed at intermediate levels of physiological arousal. Since very complex tasks have enough arousal associated with them, they drive the individual to seek out calmness. Very simple tasks, on the other hand, can become boring at low levels of arousal. According to Hebb, the bored individual will seek out other activities or novel stimuli to increase arousal.
- The relationship is often represented as an inverted U-shaped curve.

EXPLORATORY BEHAVIOR (our desire to discover and learn novel things) is the result of a desire for stimulation, which can be explained by arousal theory (Berlyne, 1966).

AROUSAL

- Arousal has both a physiological and a psychological dimension.
- **Physiologically**, the term refers to the level of alertness of an organism.
- **Psychologically**, the term refers to the tension that can accompany different levels of arousal, ranging from calmness to anxiety.

INCENTIVE

- Early theorists focused on incentives: a behavior is motivated by its expected reward – for example: a hungry animal is driven to eat because that will reduce the hunger it experiences.

- Consider again the example of studying: you are probably motivated to study this book partly because you would like to do well in the course and attain your degree. Your desire

to graduate is a **long-term goal** that motivates your current behavior – an example of complex goal-oriented behavior.

INTRINSIC MOTIVATION: the motivation stems from a desire for self-improvement and personal achievement.

- Studying because you are interested in the material, and comprehending it gives you a sense of competence and pride.

EXTRINSIC MOTIVATION: The drive comes from tangible benefits like bonuses, promotions, or praise.

- If you are studying because you think it is necessary in order to do well on your exam and get a good grade in your course.

OVERJUSTIFICATION EFFECT

- When rewards are introduced, it seems that 'play becomes work': the individual attributes their own engagement with the task to the anticipated external reward, rather than to the inherent satisfaction associated with it.
- The external reward becomes the justification for performing the task – a cognitive interpretation of the situation that is detrimental to intrinsic motivation.

Lesson 8: Memory

Memory is the means by which we retain and draw on our past experiences to use that information in the present (Tulving, 2000b; Tulving & Craik, 2000).

3 STAGES OF MEMORY:

Encoding Stage: It is the initial phase of the memory process where information is transformed into a format that can be processed and stored.

Storage Stage: Once information is encoded, it enters the storage phase, where it is maintained over time. Storage can be categorized into three main types (**sensory store**, **short-term store**, **longterm store**).

Retrieval Stage: The final stage is retrieval, which is the process of accessing stored information when needed. This stage includes:

Recall: Retrieving information without cues (e.g., essay questions).

Recognition: Identifying previously learned information with cues (e.g., multiple-choice questions)

3 MEMORY STORES

Sensory Store: Information arriving from the environment is first placed into what was termed sensory store, which has the following characteristics (see Massaro & Loftus, 1996).

- First it is large – the sensory store pertaining to a given sense organ contained all the information impinging on that sense organ from the environment.
- Second, it is transient. Information from sensory store decayed over a time period ranging from a few tenths of a second for visual sensory store to a few seconds for auditory sensory store.
- Third, that small portion of information in sensory store that was attended to (see Chapter 5) was transferred out of sensory store into the next major component of the system, short-term memory.

Short-Term Memory is, as just indicated, the next repository of information. Short-term memory has the following characteristics.

- First, it can be roughly identified with consciousness; information in short-term memory is information that you are conscious of.
- Second, information in short-term memory is readily accessible; it can be used as the foundation of making decisions or carrying out tasks in times on the order of seconds or less.

- Third, all else being equal, information in short-term memory will decay – will be forgotten – over a period of approximately 20 seconds.
- Fourth, information can be prevented from **decaying** if it is rehearsed, that is, repeated over and over (see Sperling, 1967).
- Fifth, information that is **rehearsed**, as just defined, or that undergoes other forms of processing, collectively known as **elaboration** (for example, being transformed into a suitable visual image) is transferred from short-term memory into the third repository of information, long-term store

Long-Term Memory store is, as the name implies, the large repository of information in which is maintained all information that is generally available to us. Long-term store has the following characteristics.

- First, as just indicated, information enters it via various kinds of elaborative processes, from short-term memory.
- Second, the size of long-term store is, as far as is known, unlimited.
- Third, information is acquired from long-term store via the process of retrieval (discussed briefly above) and placed back into short-term memory where it can be manipulated and used to carry out the task at hand.

SENSORY MEMORY

Sperling's experiments

The concept of **sensory memory** and its role in the process of perception was famously explored by psychologist **George Sperling** in the early 1960s. His work provided critical insights into how the brain briefly stores sensory information before it either fades or is processed further into short-term memory.

Sperling conducted an experiment that demonstrated the existence of **sensory memory**, particularly **iconic memory** (the sensory memory for visual information), and showed that sensory memory has a much larger capacity than previously thought, but a very brief duration. Sperling's experiments Sperling's discovery of sensory memory, through his famous **partial-report technique**, was a breakthrough in cognitive psychology. It showed that **sensory memory** has a much larger capacity than previously thought, but the information within it fades very quickly unless it is attended to.

WORKING VS. SENSORY MEMORY

Sensory memory: acts as a **buffer** for sensory information. It stores raw, unprocessed sensory data briefly to give the brain a chance to decide what to focus on and what to discard. It does **not require conscious effort**; it's an automatic process.

Working memory: is responsible for the **active processing** and manipulation of information that you need for **current cognitive tasks** like reasoning, problem-solving, and decision-making. It is involved in **holding, updating, and organizing** information for immediate use.

WORKING MEMORY

Encoding

- **Attention** is essential for encoding because working memory is **limited** in capacity, and it relies on attention to select relevant information for further processing.
- Only information that **captures attention** or is **actively focused on** will enter working memory and be processed for encoding into long-term memory.

Example: When reading a book, the words you are focusing on enter your working memory, whereas the background noise in the environment may not, unless you pay attention to it.

Encoding

Phonological Coding (Phonological Loop)

The **phonological loop** is the subsystem of working memory that deals with **verbal and auditory information**. It is essential for tasks such as **language comprehension, speech production**, and holding verbal information temporarily while performing other cognitive tasks.

Encoding

Visual-Spatial Coding (Visuospatial Sketchpad)

The **visuospatial sketchpad** is the subsystem responsible for processing and storing **visual** and **spatial** information. It is crucial for tasks involving **mental imagery**, spatial awareness, and navigating through environments.

Storage

- Perhaps the most striking fact about working memory is that its capacity is very limited.
- For the phonological loop, the limit is seven items, give or take two. Some people store as few as five items; others can retain as many as nine.
- It may seem strange to give such an exact number to cover all people when it is clear that individuals differ greatly in memory ability.

Storage

CHUNKING: Working memory is inherently **limited** in capacity.

- For example, the **classic 7 ± 2 rule** suggests that the average person can hold **5 to 9 individual items** in their working memory at one time.
- However, by using B, we can **increase** the amount of information that can be held in memory.

- **Example:** 101001000100001000100 (10, 100, 1,000, 10,000, 1,000, and 100)

Storage

FORGETTING We may be able to hold on to seven items briefly, but in most cases they will soon be forgotten.

- Forgetting occurs either because the items **'decay'** over time or because they are displaced by new items.
- **Decay** refers to the process by which memories fade or weaken over time due to **lack of use** or **rehearsal**.
- Decay is one of the primary theories explaining how memory can be lost, especially when information is not **rehearsed, revisited, or consolidated** into long-term memory.

Retrieval

- Research has shown that the more items there are in working memory, the slower retrieval becomes.
- **It was concluded from an experiment that...**
- Retrieving an item from working memory depends on how much it is activated. An item is considered to be in working memory if its activation reaches a certain threshold. The more items there are in working memory, the less activation each item gets, making it harder to retrieve any one item.

Transfer from working memory to long-term memory

- From what we have seen so far, working memory serves two important functions:
- It stores material that is needed for short periods, and it serves as a work space for mental computations.
- Another possible function is serving as a way station to long-term memory. That is, information may reside in working memory while it is being encoded or transferred into long-term memory
- There are a number of different ways to implement the transfer, one way that has been the subject of considerable research is rehearsal, the conscious repetition of information in working memory.
- Rehearsal apparently not only maintains the item in working memory but also can cause it to be transferred to long-term memory • Thus, the term **'maintenance rehearsal'** is used to refer to active efforts to hold information in working memory.
- Meanwhile, **elaborative rehearsal** refers to efforts to encode information in long-term memory.

Division of brain labor between working memory and long-term memory

- It has been known for some time that working memory and long-term memory are implemented by somewhat different brain structures.
- In particular, the *hippocampus*, a structure located near the middle of the brain beneath the cortex, is critical for long-term memory but not for working memory.
- Regions in the frontal cortex are involved in working memory

LONG TERM MEMORY

Retrieval

2 problems in transferring information from short-term to longterm memory

1. **Interference** - occurs when new information disrupts the retrieval of old information.

There are two main types of interference:

Proactive Interference: This happens when older memories hinder the recall of newer ones. For example, if you've learned a new phone number but keep recalling your old number instead, that's proactive interference.

Retroactive Interference: This occurs when new information makes it difficult to remember older information. For instance, if you learn a new language and then struggle to recall vocabulary from a language you learned previously, that's retroactive interference.

2. **Decay** - refers to the gradual fading of memories over time, particularly if they are not accessed or rehearsed. The idea is that if memories are not used, they become weaker and may eventually be lost. This is often described using the "forgetting curve," which shows how quickly information is forgotten after it is learned.

Emotional factors in forgetting

Rehearsal

Emotionally charged events are often rehearsed more in the mind because they are significant or impactful. This repeated mental rehearsal helps reinforce the memory, making it more likely to be stored in longterm memory.

Example: A traumatic event, like a car accident, is likely to be thought about repeatedly, which strengthens the memory.

Flashbulb Memories

These are vivid and detailed memories of emotionally intense events, often associated with a specific moment in time. The emotion tied to the event makes the memory unusually clear and long-lasting.

Example: Many people can remember exactly where they were and what they were doing when they first heard about major historical events, such as the 9/11 attacks.

Retrieval Interference via Anxiety

Anxiety or stress can interfere with the ability to retrieve memories. High emotional arousal can cause distractions or difficulty focusing, which may impair recall, especially when trying to remember emotionally neutral or less significant details.

Example: During an exam, anxiety can make it harder to recall information you've studied, even if the memory is stored in long-term memory. Emotional factors in forgetting

Context Effects

Emotion can also influence how we interpret and remember information based on the emotional context of the situation. The emotional state you're in when encoding a memory can affect how you retrieve it later.

Example: If you're in a happy mood while recalling a past event, you're more likely to remember it in a positive light. Conversely, if you're feeling sad or angry, you might remember the same event negatively.

Repression

Emotionally overwhelming or distressing memories may be repressed, meaning they are unconsciously pushed out of conscious awareness. These memories are still stored in long-term memory but may not be easily accessible.

Example: Someone who has experienced trauma, like abuse, may not consciously remember the events for years, though they might still affect their emotional state or behavior.

Memory System:

Explicit Memory (also called **declarative memory**):

Conscious and intentional recall of information. You are aware of the memory and can actively retrieve it.

- **Semantic memory** refers to our store of general knowledge about the world, including facts, concepts, and vocabulary.

- **Episodic memory** involves the recollection of specific events and experiences from our lives.

Implicit Memory (also called **non-declarative memory**):

Unconscious memory. You do not actively try to recall it, but it influences behavior and thoughts without conscious awareness.

- **Procedural memory** pertains to the knowledge of how to perform tasks and skills.

- **Classical Conditioning** includes learned associations between stimuli.

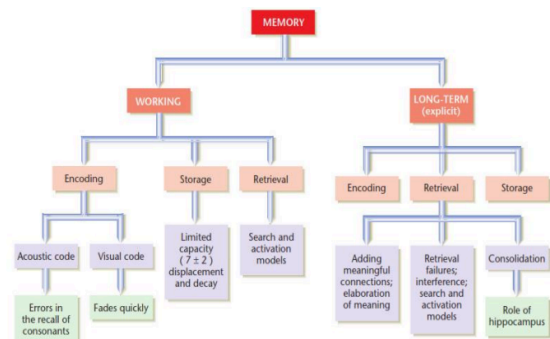


Figure 8.18 A Hierarchical Tree. Creating hierarchical trees of chapters in textbooks can help students retrieve information about those chapters. This tree represents the organization of part of this chapter.

Memory in amnesia

- Much of what is known about implicit memory has been learned from people who suffer amnesia, or partial loss of memory.
- Amnesia may result from very different causes, including accidental injuries to the brain, strokes, encephalitis, alcoholism, electroconvulsive shock, and surgical procedures (for example, removal of the hippocampus to reduce epilepsy).

IMPROVING MEMORY

Chunking and memory span

- For most of us, the capacity of working memory cannot be increased beyond 7(+/-)2 chunks.
- However, we can enlarge the size of a chunk and thereby increase the number of items in our memory span. • Given the string 149-2177-619-96, we can recall all 12 digits if we recode the string into three chunks – 1492-1776-1996 – and store them in working memory. Chunking and memory span
- Recoding system could be developed that worked with virtually any string, working memory span for numbers could be dramatically improved.
- Use of recoding systems enables to increase memory span from 7 to 28 digits (each chunk contains 4 digits).

Imagery and encoding

Mental images have been found to be particularly useful for connecting pairs of unrelated items, and for this reason imagery is the major ingredient in many **mnemonic systems**, or systems for aiding memory.

OTHER IMPORTANT CONCEPTS

1. Rehearsal is the process of consciously repeating information to keep it in short-term memory and eventually transfer it to long-term memory. It's one of the most basic strategies for enhancing memory retention.

Types of Rehearsal

Maintenance Rehearsal: Repeating information over and over without adding meaning (e.g., repeating a phone number to yourself until you can write it down). This can keep information in short-term memory but is less effective for long-term retention.

Elaborative Rehearsal: This involves associating new information with existing knowledge or making the information more meaningful, which increases the likelihood of transferring it into long-term memory (e.g., connecting a new vocabulary word to a personal experience or a known concept).

2. Elaboration refers to the process of adding more meaning, details, or connections to new information to make it more memorable. It is a deeper processing strategy that enhances long-term retention.

3. Inferences are logical conclusions or deductions made based on existing knowledge or prior experiences. When you retrieve memories, you don't always remember every detail. Instead, you use inferences to "fill in the blanks" and create a coherent narrative or interpretation of an event.

4. A schema is a mental framework or structure that helps us organize and interpret information based on previous experiences and knowledge. For example, if you are asked to remember what happened at a restaurant, your schema for a typical dining experience will fill in missing details, even though they might not have occurred exactly as you recall.

5. Stereotypes can influence the encoding and retrieval of information. When we encounter someone or something that fits a stereotype, our memory may emphasize certain features or details that confirm the stereotype, while ignoring information that contradicts it.

Stereotypes can lead to **biases** in how we remember events, often skewing our recollection toward expected or stereotypical traits.

6. Constructive memory refers to the idea that memory is not a passive process where we simply retrieve exact copies of past experiences. Instead, memory is an active process of **reconstructing** past events, often influenced by our knowledge, beliefs, and expectations.

Memory is **constructed** rather than directly recorded. When we recall an event, our mind rebuilds it, sometimes combining accurate details with inferences, emotions, and even information we've learned since the event occurred

Lesson 9: Language & Thought

Language - is our primary means of communicating thought.

- Moreover, it is universal: Every human society has a language, and every human being of normal intelligence acquires his or her native language and uses it effortlessly.

LEVELS OF LANGUAGES

Language use can be divided into two primary aspects: **production** and **comprehension**.

1. Language Production

- In language production, the process begins with a **thought**.
- This thought is then translated into a sentence, which is ultimately expressed through **speech sounds**.
- This process involves several levels:

Thought → **Sentence** → **Speech Sounds**

2. Language Comprehension

- In language comprehension, the process works in the reverse order.
- We start by **hearing speech sounds**, then assign **meaning** to those sounds, interpreting them as words.
- Finally, we understand the **meaning of sentences** formed by the combination of words.
- The steps are: **Speech Sounds** → **Words** → **Sentence**

Meaning Multilevel Structure of Language Use

Language involves a movement through various levels, which can be visualized as a hierarchy:

Highest Level: Sentence Units This includes both **sentences** and **phrases**.

Intermediate Level: Words and Morphemes

Words and parts of words (such as **prefixes** like "non-" or **suffixes** like "-er") carry specific meanings.

Lowest Level: Speech Sounds These are the basic units of spoken language



Figure 9.1 Levels of Language. At the highest level are sentence units, including phrases and sentences. The next level is words and parts of words that carry meaning. The lowest level contains speech sounds.

LANGUAGE UNITS & PROCESSES

Speech Sounds (Phonemes)

- **Phonemes** are the smallest units of sound that carry meaning. For example, the /b/ sound in "boy" is a phoneme, and changing it to /t/ turns "boy" into "toy".
- English has about 40 phonemes, though some languages have more or fewer. For example, Hindi has distinct /p/ sounds that English doesn't differentiate, and Japanese does not distinguish between /r/ and /l/.
- Phonemes are often perceived as discrete categories, even if they sound slightly different in different contexts. We tend to have difficulty distinguishing variations of the same phoneme, like the /p/ in "pin" versus "spin", which differ in the presence of a puff of air.

Word Units (Morphemes)

- **Morphemes** are the smallest units of language that carry meaning, such as prefixes, suffixes, and standalone words. For example, "un-" in "untimely" or "-ly" in "quickly" are morphemes.
- Some morphemes are **content words** (e.g., "house," "run"), while others are **grammatical morphemes** that serve to make sentences grammatically correct (e.g., articles, prepositions, and certain suffixes like "-ing" or "-ed").
- Grammatical morphemes are processed differently in the brain from content words. For example, brain damage can selectively impair the use of grammatical morphemes more than content words.

Word Meaning and Ambiguity

- **Words** typically represent concepts. However, some words are **ambiguous** and have multiple meanings. For example, "club" can refer to a social organization or a striking object.
- Context usually resolves ambiguity, though both meanings may briefly be activated during comprehension, as demonstrated in experiments where words related to both meanings of "club" were processed faster.

Sentence Units

In understanding speech, we divide it into **sentence units**, including sentences and phrases, which correspond to parts of a thought or **proposition**. A proposition typically consists of a **subject** and **predicate**.

- For example: In "Irene sells insurance", "Irene" is the subject, and "sells insurance" is the predicate.
- Complex sentences, like "Serious scholars read books," can be divided into a **noun phrase** ("Serious scholars") and a **verb phrase** ("read books"), each expressing part of a proposition.

Syntactic Analysis

- **Syntax** organizes sentence elements into structures that reveal relationships between words. For example, in the sentence "The green bird ate a red snake," syntax tells us who did the eating and what properties apply to the bird and the snake.

- Syntactic analysis is mostly unconscious, but sometimes it goes awry, as in the sentence "The horse raced past the barn fell." Initially, it's difficult to understand because the sentence requires us to adjust our syntax, reinterpreting "The horse raced past the barn" as the subject and "fell" as the verb, forming a reduced structure: "The horse who was raced past the barn fell."

LEARNING PROCESSES

How Do Children Acquire Language?

Children acquire language through a combination of **learning** and **innate factors**. The language children learn depends on the environment they grow up in — children in English-speaking households learn English, while those in French-speaking households learn French. However, there are innate factors involved, as only humans (not pets) acquire language.

Learning and Language Acquisition

When it comes to language acquisition, two primary theories have been proposed: **imitation** and **conditioning**.

1. Imitation

- One possibility is that children learn language by imitating adults. While imitation plays a role, it cannot explain everything.
- Children often produce sentences they have never heard before. For example, a child might say, "All gone milk," which they have never heard an adult say.
- Even in the early stages of language development, children may attempt to imitate longer sentences, but they still use simplified forms like "Miller try" instead of "Mr. Miller will try."

2. Conditioning

- Another theory is that language acquisition happens through **conditioning**, where children are rewarded for using grammatical sentences and corrected when they make mistakes.
- However, research (Brown, Cazden, & Bellugi, 1969) shows that parents don't usually correct every detail in their child's speech. As long as the child is understood, the exact phrasing doesn't matter.
- Additionally, attempts to correct children's mistakes are often ineffective. For example, when a child says, "Nobody don't like me," the parent might correct it to "Nobody likes me," but the child may repeat the incorrect version despite the correction.

Innate Factors in Language Acquisition

While learning plays a crucial role, innate factors also contribute to language acquisition. Some key ideas related to innate factors include:

Critical Periods

Language acquisition may be easier if a child is exposed to language during a specific critical period. If this exposure doesn't occur at the right time, it may be harder for the child to learn language later on.

Uniqueness of Human Language Ability

Some researchers argue that the ability to acquire language is unique to humans. While animals can communicate, they do not learn complex language systems like humans do.

Summary

Children's ability to acquire language is a complex process involving both **learning** (through imitation, conditioning, and social interaction) and **innate factors** (like critical periods and human-specific abilities). While imitation and conditioning play a role, the evidence suggests that children actively apply rules of language rather than simply copying what they hear.

LESSON 9: THE BUILDING BLOCKS OF THOUGHT

FUNCTIONS OF CONCEPT

Concepts help us organize the world by grouping things together based on shared properties.

Key functions of concepts include:

- Concepts simplify the world, making it easier to process information. Instead of treating every object as unique, we group similar objects under a common label (e.g., all cats are grouped under the concept of "cat").
- Concepts allow us to infer hidden properties. For example, knowing an object is an "apple" lets us predict it has seeds and is edible, even if we can't directly perceive these properties.
- Concepts help us plan, make decisions, and communicate efficiently. We can create new concepts for specific situations (e.g., "things to take on a camping trip")

Prototype represents the "typical" example of a concept.

For instance, the prototype of "grandmother" might be a woman in her 60s who loves spending time with her grandchildren. Similarly, the prototype of a "bird" could include traits like flying and chirping, though not all birds (like penguins) fit this prototype.

- **Core** represents the defining properties of a concept that are essential for membership.

For "grandmother," the core might be the fact that she is a female parent of a parent. The core is clearer and more universally applicable than the prototype.

Well-defined vs. Fuzzy Concepts

Well-defined concepts (e.g., "grandmother") have clear defining features, and categorizing them is straightforward.

Fuzzy concepts (e.g., "bird") are less clear and rely on prototypes. For example, "bird" might be based on observable traits like flying, but these traits aren't always definitive (e.g., ostriches don't fly).

Hierarchical Structure of Concepts

Concepts are often organized in a hierarchical structure, where broader categories contain narrower subcategories. This organization helps us efficiently categorize and understand the world around us. The hierarchical structure reflects relationships between concepts based on their generality or specificity.

Levels of Categorization: Superordinate, Basic, and Subordinate There are three primary levels in this hierarchical structure:

1. Superordinate Level (Most General): This is the broadest level of categorization, where concepts are highly general. For example, the concept "animal" is a superordinate category that includes all animals, whether they're mammals, birds, reptiles, etc.

2. Basic Level (Most Informative): This is the middle level, where we most often categorize objects. It is at this level that concepts are most distinct and useful for everyday classification. For instance, "dog" or "bird" are basic-level categories. They are general enough to group many things together but specific enough to distinguish one group from another. The basic level is also the first level children learn when acquiring concepts.

3. Subordinate Level (Most Specific): This is the most specific level of categorization, where concepts become highly detailed. For example, "Golden Retriever" or "Parakeet" are subordinate-level categories. These categories are more specific than the basic level and include fewer examples.

Basic-Level Categories: Special Importance

- The **basic level** is particularly important for categorization. Research has shown that when people are asked to name an object, they most often use the basic level. For example, when shown a picture of a dog, people will typically say "dog" rather than the more general "animal" or the more specific "Labrador Retriever."
- The basic level is considered the **preferred level of categorization** because:
 - It has the most distinctive features, making objects easy to recognize.
 - It is the level at which people store and retrieve information most efficiently.

Rule-based categorization works for well-defined concepts, where we apply a set of rules (e.g., a "grandmother" must be the female parent of a parent).

Similarity-based categorization is used for fuzzy concepts. We judge how similar an object is to a prototype (e.g., Is this chair similar enough to the typical chair?)

LESSON 9: REASONING

Deductive reasoning - involves applying logical rules to draw a conclusion that necessarily follows from the premises. A valid deductive argument guarantees that if the premises are true, the conclusion must also be true.

Example of Deductive Reasoning:

Premise 1: "If it's raining, I'll take an umbrella."

Premise 2: "It's raining."

Conclusion: "I'll take an umbrella."

This follows from the logical rule: *If p, then q*. Given that p (it's raining) is true, we can infer q (I'll take an umbrella).

Rule Application: When reasoning deductively, people apply rules like the *If p then q* rule. For simple arguments, people can often do this unconsciously. As the complexity of the argument increases, reasoning becomes more conscious and requires multiple steps.

Inductive reasoning - involves making conclusions based on probability rather than certainty. The conclusion is probable but not guaranteed, even if the premises are true.

Example of Inductive Reasoning:

Premise 1: "Mitch majored in accounting in college."

Premise 2: "Mitch now works for an accounting firm."

Conclusion: "Mitch is an accountant."

Inductive reasoning is about likelihood rather than logical certainty, and is often based on **probability theory**. People use rules like the **base-rate rule** (the likelihood of something depends on the frequency of that class) and the **conjunction rule** (the probability of two events occurring together cannot be greater than the probability of either event alone).

Common Violations in Inductive Reasoning:

Base-rate neglect: People ignore statistical base rates when making judgments. For example, when told that a person is described in a way typical of engineers, participants often ignore the base rate (e.g., 30 engineers vs. 70 lawyers) and focus on the person's characteristics.

Conjunction fallacy: People sometimes judge combined events (e.g., "Linda is a feminist bank teller") as more probable than a single event (e.g., "Linda is a bank teller"), even though this violates probability theory.

DEDUCTIVE VS. INDUCTIVE REASONING

- **Deductive reasoning** involves applying strict logical rules to draw conclusions, but human reasoning is often influenced by plausibility and content.

- **Inductive reasoning** deals with probability, and while people often rely on logical rules, they also use heuristics, which can lead to errors.

- **Heuristics** - are mental shortcuts that people use to make judgments and decisions quickly and efficiently.

- These shortcuts often work well in everyday life, enabling people to navigate complex decisions without expending too much cognitive effort.

- However, while heuristics can be helpful, they are also prone to leading to **biases** and **faulty judgments**. Three common heuristics are **similarity**, **causality**, and **availability**. Each of these simplifies the reasoning process, but they can also cause us to make systematic errors.

1. Similarity Heuristic involves judging the probability of an event based on how similar it is to a typical example or prototype. For instance, when making judgments about whether someone belongs to a particular group (like a profession), people might compare that person to their mental prototype of the typical member of that group.

2. Causality Heuristic involves making judgments about the likelihood of events based on perceived causal relationships. This heuristic simplifies reasoning by focusing on cause-and-effect scenarios, where we infer that one event likely causes another based on their relationship.

3. Availability Heuristic is the tendency to judge the likelihood of an event based on how easily examples come to mind. If something is easier to recall (because it's more vivid, recent, or emotionally impactful), people are likely to judge it as more common or probable

Lesson 10: Motivation

MOTIVATION - is a condition that **energizes behavior** and gives it direction.

- It is experienced subjectively as a conscious desire – the desire for food, for drink, for sex.

Most of us can choose whether or not to act on our desires. We can force ourselves to forgo what we desire, and we can make ourselves do what we would rather not do. Perhaps we can even deliberately choose not to think about the desires that we refuse to act on.

But it is considerably more difficult – perhaps impossible – to control our motivations directly. When we are hungry, it is hard not to want food. When we are hot and thirsty, we cannot help wanting a cool breeze or a cold drink.

› **DRIVE THEORIES** - focus on the idea that motivation arises from biological drives or needs, which are internal states that push individuals to take action in order to maintain **homeostasis** (a stable internal environment).

- These theories suggest that human behavior is largely motivated by the need to fulfill basic physiological and psychological needs.

Key Concepts

Drive - A state of internal tension or discomfort caused by unmet physiological needs (such as hunger, thirst, or sleep). This tension motivates individuals to engage in behaviors that reduce the discomfort and restore balance or homeostasis.

Homeostasis - The body's attempt to maintain a balanced, stable internal state (e.g., regulating body temperature, hunger, and hydration).

› **INCENTIVE THEORIES** - focus on the role of external stimuli or rewards in motivating behavior. Unlike drive theories, which emphasize internal states, incentive theories propose that people are motivated by external goals or rewards, which provide positive reinforcement.

Key Concepts

Incentives: External rewards or stimuli that motivate behavior. These can include tangible rewards (e.g., money, food) or intangible rewards (e.g., praise, recognition, success).

***Affect**- refers to the entire range of consciously experienced pleasure and displeasure.

***Incentive Salient** - objects and events have become linked with anticipated affect, which grabs our attention and steers our seeking behavior.

Types of Incentives

1) **Primary Reinforcers** - are incentives that act as rewards **independently of prior learning**.

• These are inherently pleasurable or satisfying because they satisfy basic biological needs or drives.

Examples:

A sweet taste

A sexual sensation

2) **Secondary Reinforcers** - gain their value as rewards through **learning** about their relationship to other events or outcomes.

• These reinforcers are not inherently rewarding but become so due to **cultural or personal experiences**.

Examples:

Money: Learned to be valuable because it can be exchanged for goods and services.

Good grades: Associated with success, approval, and future opportunities.

Brain's Dopamine System

Wanting seems to have evolved as a way for the brain to guide future actions by tracking the outcomes of past behaviors.

The brain may use a "**common currency**" for rewards, where different desires are converted into an equivalent value.

This currency is linked to the brain's dopamine system, which is activated by both natural rewards (like food or sex) and drugs (such as cocaine or heroin).

Lesson 11: Emotion

EMOTION - emotion is a complex, multicomponent experience that prepares an individual to act.

- Intense emotions typically involve six key components.

COMPONENTS OF EMOTION

1) **Cognitive Appraisal** - The emotion begins with a **cognitive appraisal**, where a person assesses the personal significance of their current situation.

• This initial assessment determines how we interpret and respond to events.

2) **Subjective Experience (Feeling Tone)** - refers to the emotional **feeling** or affective state, which is the emotional tone that accompanies the appraisal.

• This is the part of the emotion we recognize as "feeling" happy, sad, angry, etc.

3) **Thought and Action Tendencies** - these are the **urges** to think or act in certain ways based on the emotion.

Example: Anger might lead to the urge to act aggressively, while curiosity may encourage exploration.

4) **Internal Bodily Reactions** - Emotional experiences trigger **bodily reactions**, particularly those controlled by the **autonomic nervous system** (e.g., heart rate, breathing).

Example: Fear may cause your heart to race or palms to sweat.

5) **Facial expressions** - are the muscle movements in the face that convey emotions.

Example: Disgust is often expressed by frowning, raising the upper lip, and squinting the eyes.

6) **Responses to Emotion (Coping)** - This refers to how people **cope with or react to** their emotional experience or the situation that triggered it.

• Responses can include actions or strategies to manage or adapt to the emotion. This makes emotions different from moods.

• Emotions have a clear cause (e.g., anger at a sister, awe at the Grand Canyon), while moods are more diffuse and don't have a specific trigger (e.g., feeling irritable or cheerful without a clear reason).

• Emotions are brief, lasting seconds or minutes, whereas moods can last hours or days.

This makes emotions different from moods.

• Emotions involve multiple components (like bodily reactions, facial expressions, etc.), while moods may only be felt as a general feeling.

• Emotions are often categorized (e.g., fear, joy, anger), while moods are typically viewed along dimensions like pleasantness and arousal level.

THOUGHTS & ACTION TENDENCIES

• Negative emotions trigger specific action tendencies that helped our ancestors survive life-threatening situations.

• Positive emotions, on the other hand, promote broadening behaviors that build resources like health, optimism, and social support (Fredrickson, 1998, 2001; Tooby & Cosmides, 1990).

• Studies show that emotions, such as fear or disgust, lead to specific action tendencies.

• For example, when participants viewed fear-inducing images, they exhibited faster withdrawal responses, as measured by muscle activity (Coombes, Cauraugh, & Janelle, 2007).

Negative emotions tend to narrow action tendencies (e.g., fear leads to an urge to escape), while positive emotions broaden them (e.g., joy leads to playfulness).

These tendencies are not automatic actions but represent possible courses of action influenced by emotion. Whether these tendencies lead to actual behaviors depends on factors like impulse control and cultural norms

Emotion

Anger
Fear
Disgust
Guilt
Shame
Sadness
Joy
Interest
Contentment
Pride
Gratitude
Elevation

Thought-action tendency

Attack
Escape
Expel
Make amends
Disappear
Withdraw
Play
Explore
Savor and integrate
Dream big
Be prosocial
Become a better person

Lesson 12: Intelligence

INTELLIGENCE - is often defined as the **mental capacity to learn** from experience, adapt to new situations, understand complex ideas, and manipulate one's environment effectively.

This definition emphasizes cognitive processes such as reasoning, problem-solving, and abstract thinking.

RELIABILITY refers to the **consistency and stability** of a test's results over time. A reliable test yields the same results under consistent conditions. If an intelligence test is reliable, it should produce similar results when taken multiple times by the same person or when administered to different people under similar circumstances.

There are several types of reliability in testing:

1) **Test-Retest Reliability**: This measures the **stability of test scores** over time. If you take the same intelligence test today and then again in a few weeks or months, the scores should be very similar if the test is reliable.

2) **Inter-Rater Reliability**: This measures the degree to which different examiners or raters agree on the results of a test. For example, if multiple judges are rating an individual's performance on a task, their **ratings should be consistent**.

3) **Internal Consistency**: This measures whether the **items** on a test are **consistent with each other**. A highly reliable intelligence test will have items that measure the same underlying trait or ability.

VALIDITY refers to the extent to which a test **measures what it is supposed to measure**. A test is valid if the results truly reflect the construct (e.g., intelligence) it claims to assess.

In other words, a valid intelligence test should measure intelligence and not something else (such as test-taking ability or anxiety).

There are different types of validity:

1) **Content Validity**: This refers to how well the test covers the entire domain it is meant to measure. For example, a valid intelligence test should include a range of questions or tasks that address different aspects of intelligence, such as logical reasoning, verbal ability, and memory.

2) **Construct Validity**: This refers to how well the test actually measures the theoretical construct it is intended to measure. For instance, an intelligence test should truly assess the cognitive abilities related to intelligence, not just

test-taking strategies or unrelated skills. There are different types of validity:

3) **Criterion-Related Validity**: This refers to how well the test correlates with other measures of the same construct. There are two types:

Concurrent Validity: The test's ability to correlate with other measures of intelligence administered at the same time.

Predictive Validity: The test's ability to predict future outcomes, such as academic success or job performance, based on the scores.

4) **Face Validity**: Although not a technical form of validity, face validity refers to whether the test appears to measure what it claims to measure.

EARLY INTELLIGENCE TEST

› **STANFORD-BINET INTELLIGENCE SCALE** is one of the oldest and most widely used intelligence tests.

- Originally developed by French psychologist **Alfred Binet** in the early 20th century, it was later adapted and revised by **Lewis Terman** at Stanford University, which is why it's often referred to as the **Stanford-Binet** test.

- It was designed to measure a variety of cognitive abilities and identify children who needed special educational support.

Initial Purpose: The test was originally created to measure a child's mental age and determine whether they were performing at, above, or below their expected cognitive level for their age.

Revisions and Modern Use: The Stanford-Binet test has undergone several revisions (the most recent being the SB5, released in 2003), expanding its application and refining its methods. Today, it is used to measure intelligence across a wide age range, from 2 years old to adulthood.

Key Features of the Stanford-Binet (SB5)

Five Factors: The test measures five core areas of cognitive ability:

1) **Fluid Reasoning**: Problem-solving abilities in new or unfamiliar contexts.

2) **Knowledge**: Accumulated facts and information.

3) **Quantitative Reasoning**: Ability to solve mathematical problems.

4 Visual-Spatial Processing: Ability to think in pictures, to visualize, and to manipulate objects in the mind's eye.

5 Working Memory: The capacity to hold and manipulate information in one's mind for short periods.

Mental Age and IQ: Like the original version, the Stanford-Binet measures a person's cognitive abilities in relation to their chronological age. The result is often expressed as an **Intelligence Quotient (IQ)** score, which compares a person's performance to the average performance of others in the same age group.

IQ Calculation: The IQ score is calculated by dividing a person's mental age by their chronological age and multiplying the result by 100. For example, if a 10-year-old child has a mental age of 12, their IQ would be 120 ($12/10 * 100$).

> **WECHSLER INTELLIGENCE TEST**

• The **Wechsler Intelligence Scales** are another widely used set of intelligence tests, developed by **David Wechsler** in the 1950s.

• These scales are designed for both children and adults and emphasize a broader view of intelligence compared to the Stanford-Binet, focusing on different aspects of intelligence beyond just verbal skills.

Versions

1 Wechsler Adult Intelligence Scale (WAIS): First published in 1955, this test is designed for individuals aged 16-90. The most recent version, the **WAIS-IV**, was released in 2008.

2 Wechsler Intelligence Scale for Children (WISC): First published in 1949, it's designed for children aged 6-16. The current version is **WISC-V** (released in 2014).

3 Wechsler Preschool and Primary Scale of Intelligence (WPPSI): For children aged 2.5 to 7 years.

The Wechsler scales divide intelligence into two broad categories:

Verbal IQ: Measures verbal comprehension, vocabulary, and other language-based skills.

Performance IQ: Measures non-verbal, fluid reasoning, and problem-solving abilities (e.g., spatial puzzles, block design).

The tests were later updated to measure **four key indices:**
Verbal Comprehension Index (VCI): Ability to understand and process verbal information.

Perceptual Reasoning Index (PRI): Non-verbal problem solving and abstract reasoning.

Working Memory Index (WMI): The ability to hold and manipulate information in the mind.

Processing Speed Index (PSI): Speed of mental processing, typically related to visual scanning and decision-making.

CONTEMPRARY THEORIES OF INTELLIGENCE

1. GARDNER'S THEORY OF MULTIPLE INTELLIGENCES (MI)

Howard Gardner proposed the theory of Multiple Intelligences (MI) in 1983.

• He argued that intelligence is not a single, general ability but a collection of distinct, independent "intelligences" that represent different ways of processing information and interacting with the world.

Gardner identified eight intelligences, each corresponding to a different domain of human skill and expertise:

1 Linguistic: The ability to use language effectively.

2 Logical-mathematical: The ability to reason logically and solve mathematical problems.

3 Spatial: The ability to visualize and manipulate objects in space.

4 Musical: The ability to recognize, create, and appreciate music and rhythm

5 Bodily-kinesthetic: The ability to use one's body skillfully (e.g., athletes, dancers).

6 Interpersonal: The ability to understand and interact with others.

7 Intrapersonal: The ability to understand oneself and one's emotions.

8 Naturalistic: The ability to recognize and categorize patterns in nature.

2. ANDERSON'S THEORY OF INTELLIGENCE AND COGNITIVE DEVELOPMENT

John R. Anderson's theory is primarily focused on **cognitive development** and **information processing**. He developed the **ACTR (Adaptive Control of Thought—Rational)** cognitive architecture, which describes how people process information, solve problems, and develop expertise

Anderson integrates cognitive psychology with models of learning and reasoning to explain intelligence in terms of mental representations and strategies.

Declarative Knowledge: Information that is consciously known (e.g., facts, rules).

Procedural Knowledge: Knowledge of how to perform tasks or solve problems.

Cognitive Development: The development of these knowledge structures and the ability to apply them efficiently in problem-solving.

3. STERNBERG'S TRIARCHIC THEORY OF INTELLIGENCE

Robert Sternberg's Triarchic Theory of Intelligence posits that intelligence can be understood in three interacting components:

Analytical intelligence (or componential): The ability to analyze, compare, and evaluate information (similar to traditional IQ).

Creative intelligence (or experiential): The ability to deal with novel situations and use creativity to solve problems.

Practical intelligence (or contextual): The ability to adapt to the environment, understand real-world situations, and navigate everyday challenges.

Sternberg suggests that intelligence is not just about academic or cognitive performance but includes practical skills and creativity. He advocates for a broader understanding of intelligence that includes how individuals apply their abilities in real-world contexts.

> CECI'S BIOLOGICAL THEORY

Robert J. Ceci's **bioecological theory** of intelligence takes a more **contextual and developmental** approach. He argues that intelligence is the product of **interactions between biological factors** (genetic predispositions) and **environmental influences** (culture, education, and social context).

This theory emphasizes how intelligence develops over time in specific settings, influenced by the resources available and the opportunities a person encounters.

Ceci proposed that **intellectual performance** is the result of the interaction between a person's **innate abilities**, the **cultural context**, and the **opportunities** they have for developing those abilities

Lesson 13: Personality

PERSONALITY is the unique pattern of thoughts, feelings, and behaviors that shape how we interact with the world. When describing someone's personality, we often use trait-based adjectives like "extroverted" or "conscientious."

- Personality psychologists aim to create formal ways to describe and measure personality, focusing on three things: reducing the list of traits to a manageable set, ensuring their measurement tools are reliable and valid, and studying how traits relate to behaviors.
- To identify key traits, psychologists often start by consulting dictionaries, assuming that language captures the important distinctions between individuals.
- This idea dates back to the late 19th and early 20th centuries, with Allport and Odbert in the 1930s recording about 18,000 words in the English dictionary related to behavior, eventually narrowing it down to 4,500 core traits.

IDENTIFICATION OF KEY TRAITS

› EYSENCK'S PERSONALITY FACTORS

British psychologist **Hans Eysenck** identified two main personality factors based on psychiatrists' ratings of patients:

Introversion–Extroversion

This dimension reflects whether a person is more focused on themselves (introversion) or the outside world (extroversion).

Introverts: Shy, prefer to work alone, and tend to withdraw in times of stress or conflict.

Extroverts: Sociable, enjoy working with others, and seek company when stressed.

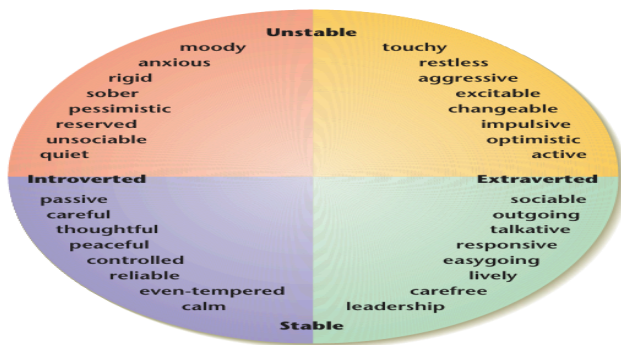
British psychologist Hans Eysenck identified two main personality factors based on psychiatrists' ratings of patients:

Neuroticism (Emotional Instability–Stability)

This dimension describes a person's emotionality.

Neurotic/Unstable: Moody, anxious, temperamental, and maladjusted.

Stable: Calm, well-adjusted, and emotionally resilient.



› "BIG FIVE"

The Big Five Personality Traits offer a robust framework for understanding individual differences in personality, with significant contributions from researchers like **Lewis Goldberg**, **Robert McCrae**, and **Paul Costa**. Their work

Trait factor	Representative trait scales
Openness	Conventional–Original Unadventurous–Daring Conservative–Liberal
Conscientiousness	Careless–Careful Undependable–Reliable Negligent–Conscientious
Extroversion	Retiring–Sociable Quiet–Talkative Inhibited–Spontaneous
Agreeableness	Irritable–Good natured Ruthless–Soft hearted Selfish–Selfless
Neuroticism	Calm–Worrying Hardy–Vulnerable Secure–Insecure

continues to shape the field of personality psychology and has practical applications in diverse areas such as mental health, education, and the workplace.

The **Big Five** personality traits, also

known as the **Five Factor Model**, are a widely accepted theory for describing human personality. They include:

Openness to Experience

- Describes a person's willingness to try new things, be imaginative, and embrace creativity.
- People high in openness are curious, inventive, and open-minded, while those
- low in openness may prefer routine and familiarity.

Conscientiousness

- Reflects how organized, responsible, and dependable a person is.
- High conscientiousness individuals are disciplined, goal-oriented, and self-controlled, while those
- low in conscientiousness may be more spontaneous and less reliable.

Extraversion

- Describes the degree to which a person is outgoing, energetic, and sociable.
- Extraverts are talkative, assertive, and thrive in social situations,
- whereas introverts tend to be more reserved and prefer solitude.

Agreeableness

- Measures a person's tendency to be compassionate, cooperative, and caring.
- High agreeableness individuals are friendly, empathetic, and trusting, while
- low agreeableness people may be more competitive or skeptical.

Neuroticism

- Reflects emotional stability and the tendency to experience negative emotions like anxiety, sadness, or mood swings.
- People high in neuroticism may be more prone to stress and worry, while those
- low in neuroticism tend to be calm, secure, and resilient.

PERSONALITY INVENTORIES

MMPI

The **Minnesota Multiphasic Personality Inventory (MMPI)** is one of the most widely used psychological assessments, primarily used to assess and diagnose mental health disorders. The MMPI is a standardized test that measures various aspects of a person's personality, behavior, and emotional functioning.

Key features of the MMPI

Purpose: It is used to assess personality structure, identify psychological conditions, and provide insight into a person's mental state. The test is often used in clinical settings, including for pre-employment screening, forensic assessments, and treatment planning.

Structure: The MMPI consists of a series of true/false statements that respondents answer. The test assesses a wide range of psychological conditions and personality traits. The original MMPI has over 500 items, but there are shorter versions, such as the MMPI-2-RF (Restructured Form), with 338 items.

Clinical Scales: The MMPI includes several scales that measure specific psychological conditions. Some key scales are:

Hypochondriasis (Hs): Measures concerns about physical health.

Depression (D): Assesses feelings of hopelessness, sadness, and other depressive symptoms.

Hysteria (Hy): Measures emotional reactivity and susceptibility to stress.

Psychopathic Deviate (Pd): Reflects social deviation, interpersonal issues, and nonconformity.

Masculinity-Femininity (Mf): Measures interest in activities stereotypically

associated with one gender or another.

Paranoia (Pa): Measures levels of paranoia and suspicion.

Schizophrenia (Sc): Assesses a range of symptoms related to psychosis.

Social Introversion (Si): Reflects a person's level of social comfort and introversion.

Validity Scales: The MMPI also includes validity scales that assess the test-taking attitude and the validity of the answers provided. Some examples are:

L (Lie): Measures the tendency to present oneself in an overly favorable light.

F (Frequency): Identifies unusual or extreme responses, which could indicate a misunderstanding of the questions or an attempt to exaggerate.

K (Correction): Assesses self-control and interpersonal relationships.

The MMPI is used for:

- Clinical assessment (diagnosing mental health conditions like depression, anxiety, and personality disorders).
- Forensic psychology (court-ordered evaluations, custody evaluations, etc.).
- Pre-employment testing (especially for positions that involve high stress or decision-making).
- Screening for mental health and psychological issues in various contexts.

Overall, the MMPI is a crucial tool in psychology, offering valuable insights into a person's mental health and personality traits, and is often administered by licensed professionals to ensure accurate interpretation and ethical use.

THE Q SORT

- The **Q-sort** is a psychological assessment technique used to study and measure personality, attitudes, or other subjective aspects of a person's experience.
- It was developed by **Jack Block** in the 1950s and is often used in clinical, research, and therapeutic settings.
- The Q-sort method is primarily concerned with how individuals categorize and evaluate items or statements based on their personal beliefs, experiences, or perceptions.

Methodology

- The Q-sort consists of a set of statements (often 60-100 items), which are typically descriptive of various personality traits, behaviors, attitudes, or feelings.

- Participants are asked to sort these items into categories according to how well each item describes them (or the person being assessed).

- The sorting process involves creating a **forced distribution** in which the statements are grouped on a continuum, usually ranging from "most like me" to "least like me" (often using a 9-point scale).

Procedure

- **Preparation:** A set of cards or statements is provided, each containing a specific trait or description (e.g., "I often feel anxious," "I enjoy taking risks").

- **Sorting:** The individual sorts the statements into categories, often ranging from 1 to 9 or 1 to 11, with extreme categories (e.g., "most characteristic" and "least characteristic") at both ends.

- **Rearrangement:** The person rearranges the cards based on their perception of how well each trait or statement fits them. The middle categories are the largest, while the extremes (very characteristic and very uncharacteristic) are the smallest.

Two Types of Q-sorts

1. **Self Q-sort:** The individual evaluates themselves by sorting the cards based on how well the traits described fit their own personality.
2. **Other Q-sort:** The individual sorts the cards based on how well they think the statements describe someone else, such as a family member or a close friend.

Applications

- **Personality assessment:** The Q-sort can be used to assess various aspects of an individual's personality, such as self-concept, emotional functioning, or the perceived differences between their ideal self and their actual self.

- **Therapeutic settings:** In psychotherapy, the Q-sort can be used to explore how clients view themselves, their relationships, or their behavior. It can also help track changes in self-perception over time.

- **Research:** In psychological research, the Q-sort is used to explore how people categorize traits, behaviors, or concepts, making it a useful tool for studying attitudes, self-concept, and the organization of personality.

Advantages

• It can be applied to a variety of psychological topics, such as self-image, social roles, and values.

• Despite being a subjective technique, the sorting process results in a form of data that can be analyzed statistically to identify patterns, groupings, and correlations.

• It provides deep insights into how individuals perceive themselves or others, which can help in both research and therapy.

Limitations

• The Q-sort depends heavily on the subjective judgment of the individual, which can introduce bias.

• The sorting process can be long, especially when many items are involved.

• Analyzing the results of a Q-sort requires a trained professional to make sense of the patterns and categories.

APPROACHES TO PERSONALITY

↳ PSYCHOANALYTIC APPROACH

• Founded by **Sigmund Freud**, this approach emphasizes the influence of the unconscious mind, early childhood experiences, and internal conflicts on personality development.

• Key concepts include **id**, **ego**, and **superego** as well as defense mechanisms, like repression and denial, which protect the individual from anxiety.

• Freud proposed that personality develops in stages (e.g., oral, anal, phallic) and that unresolved conflicts in these stages can influence behavior later in life.

• Freud's ideas also include **dream analysis** and **free association** as ways to uncover unconscious thoughts.

↳ BEHAVIORIST APPROACH

• Focuses on how personality is shaped by **learning** and the environment. Behaviorists argue that personality is not an innate quality, but rather a set of learned behaviors.

• Key figures like **B.F. Skinner** and **John B. Watson** emphasized the role of **reinforcement** (rewards and punishments) and **conditioning** (classical and operant) in developing personality.

• Behaviorists believe that by changing environmental stimuli, behaviors can be modified, and thus



personality traits can be shaped or altered.

↳ **HUMANISTIC APPROACH**

- Focuses on the individual's potential for personal growth and self-actualization. It emphasizes conscious experiences and the innate drive to reach one's fullest potential.

- Key figures include **Carl Rogers** and **Abraham Maslow**. Rogers introduced the idea of the **self-concept**, which is how we perceive our own identity, and emphasized the importance of unconditional positive regard in personal development.

- Maslow proposed the **hierarchy of needs**, with self-actualization at the top, representing the ultimate realization of personal potential.

- This approach highlights the importance of **free will**, self-awareness, and the ability to make choices.

PROJECTIVE TEST

↳ **PROJECTIVE TESTS** are used by personality psychologists, especially those in the psychoanalytic tradition, to assess unconscious desires, motivations, and conflicts.

- These tests are designed to resemble Freud's free association technique, where individuals respond freely to ambiguous stimuli. The idea is that the ambiguity allows the person to project their personality, revealing insights about themselves.

Two widely used projective tests are the **Rorschach Test** and the **Thematic Apperception Test (TAT)**.

1. **RORSCHACH TEST**

Developed by **Hermann Rorschach** in 1921.

Method: The test involves showing the individual a series of 10 inkblot images (some in black and white, others in color) and asking them what each image looks like or reminds them of.

Purpose: The idea is that people project their unconscious thoughts, feelings, and concerns onto the ambiguous inkblots. Their interpretations are believed to reveal aspects of their personality, emotional functioning, and cognitive processing.

Analysis: Responses are analyzed based on content (what the person sees), location (where they see it in the image), and determinants (the characteristics of the image they focus on, such as color, form, or shading).

Uses: The Rorschach is used to uncover underlying thought patterns, emotional states, and interpersonal dynamics. It is commonly used in clinical settings, including psychological assessments and therapy.

2. **THEMATIC APPERCEPTION TEST (TAT)**

Developed by **Henry Murray** and **Christiana Morgan** in the 1930s.

Method: The TAT consists of a series of pictures depicting ambiguous scenes or situations, and the individual is asked to tell a story about what is happening in each image. They are encouraged to describe the characters' thoughts, feelings, and motivations.

Purpose: Similar to the Rorschach, the TAT aims to reveal unconscious desires, fears, and conflicts. The stories the person creates are thought to reflect their inner emotional world, interpersonal relationships, and overall personality.

Analysis: The analysis focuses on the themes in the stories, such as power, conflict, or achievement, and how the individual projects themselves into the narrative. The content of the stories and the way individuals describe characters and events are believed to reveal personal concerns and psychological states.

Uses: The TAT is used to explore an individual's needs, conflicts, and internal drives, often in therapeutic settings, as well as in research on personality and motivation.

Lesson 14: Stress, Health, and Coping

STRESS - refers to experiencing events that are perceived as *endangering one's physical or psychological well-being*. These events are usually referred to as **stressors**, and people's reactions to them are termed **stress responses**

SOURCES OF STRESS

- Sources of stress include major life changes (e.g., war, illness, moving), daily hassles (e.g., traffic, lost items), and internal conflicts; these stressors can be **acute** (short-term) or **chronic** (long-term).

Stress can arise from both **external events** and **internal struggles**, with varying durations and impacts on individuals.

TRAUMATIC EVENTS - are events outside the normal range of people's experience that are highly distressing.

Traumatic events like natural disasters, accidents, or assaults are extreme stressors that trigger a series of psychological reactions, from shock and passivity to anxiety and difficulty concentrating.

Traumas such as rape can lead to a wide range of emotional and physical problems.

The impact of such events varies by individual, with factors like controllability, predictability, life changes, and internal conflict influencing how stressful an experience is perceived to be.

(4) CHARACTERISTICS OF STRESSFUL EVENTS

1. **Controllability**— the degree to which we can stop it or bring it about— influences our perceptions of stressfulness.

like losing a loved one or being laid off—are often more stressful, and simply believing we have **control** can reduce stress, even if we don't use that control.

Studies show that the perception of control lowers anxiety and improves performance under stress, highlighting how our beliefs about control influence how we experience stressful situations.

2. **Predictability** – the degree to which we know if and when it will occur— also affects its stressfulness.

Predictable events are generally perceived as less stressful than unpredictable ones because they allow individuals to prepare mentally and physically, reducing emotional distress.

Even if an event is uncontrollable, knowing when it will happen provides a sense of safety between occurrences, making predictability a key factor in how stress is experienced and managed.

3. **Major changes in life circumstances** - whether positive or negative, can be stressful because they require personal **adjustment**.

The Life Events Scale or **Holmes and Rahe Social Readjustment Rating Scale** ranks life events by how much readjustment they typically demand, with events like the *death of a spouse* and *divorce* being among the most stressful.

However, not everyone experiences stress the same way. Individual differences such as age, culture, and personal perception influence how stressful an event feels.

4. **Internal conflicts** – unresolved issues that may be either conscious or unconscious.

They arise when a person must choose between **incompatible or opposing goals** or motives.

Common real-life examples include:

- Wanting to go out with friends vs. needing to study
- Having to choose between two attractive job offers
- Avoiding an uncomfortable social event vs. wanting to avoid conflict at home

Four major internal conflicts that often cause stress:

1. **Independence vs. Dependence** – Wanting support vs. the need to handle things on your own.
2. **Intimacy vs. Isolation** – Wanting close relationships vs. fear of rejection or vulnerability.
3. **Cooperation vs. Competition** – Balancing teamwork with the drive to succeed individually.
4. **Impulse Expression vs. Moral Standards** – Managing natural urges (e.g., anger, sexuality) while respecting social and moral norms.

These conflicts can be **conscious or unconscious**, and unresolved inner struggles can create **emotional tension, guilt, and regret**.

PSYCHOLOGICAL REACTIONS TO STRESS

ANXIETY - a state of apprehension, tension, and worry. Synonymous with fear for some theorists, although others view the object of anxiety (such as a vague danger or foreboding) as less specific than the object of a fear (such as a vicious animal).

- is a common response to stress. Some people develop a severe anxiety disorder called post-traumatic stress disorder.

Post-Traumatic Stress Disorder (PTSD) - An anxiety disorder in which a stressful event that is outside the range of usual human experience, such as military combat or a natural disaster, brings in its aftermath such symptoms as a re-experiencing of the trauma and avoidance of stimuli associated with it, a feeling of estrangement, a tendency to be easily startled, nightmares, recurrent dreams, and disturbed sleep.

(4) Major Symptom Sets of PTSD:

1. Detachment from everyday life & Emotional Numbness

- Feeling estranged from others
- Loss of interest in activities
- sit around for hours at a time, apparently staring into nothingness.

2. Re-experiencing the Trauma

- Nightmares, flashbacks
- even while awake, they may mentally relive the trauma so vividly that they begin to behave as if they were there.
- Behavior mimicking trauma response (e.g., a soldier diving for cover)

3. Hyperarousal

- Sleep problems
- Difficulty concentrating
- Constant alertness

4. Survivor Guilt (additional symptom)

- Feeling guilty for surviving when others didn't

Onset and Duration

- PTSD can appear **immediately** or **later**, even years after trauma.
- It may **last for years or decades**, depending on severity and support

ANGER AND AGGRESSION - When people (or animals) are stressed, they may respond with **anger**, which can lead to **aggressive behavior**.

- Example: Animals that are shocked in a cage they can't escape from start fighting out of stress.

Frustration–Aggression Hypothesis

- This theory says that **frustration (being blocked from reaching a goal)** leads to **aggression**.
- It's a common response, though **not guaranteed**.
- Example: A child might hit another child who took their toy.

Displaced Aggression

- Sometimes, people can't confront the source of their frustration directly:
 - The source might be **unclear**.
 - Or it might be **too powerful** (e.g., a boss).
- In those cases, people may take out their anger on **others who are not responsible**.
- Example: A man yelled at by his boss might come home and argue with his family

APATHY AND DEPRESSION - Some people **withdraw** emotionally and physically.

Opposite of anger & depression

- If the stressful conditions continue and the individual is unable to cope with them, apathy deepens into **depression**.

Learned Helplessness (Seligman, 1975) This theory explains why people (and animals) may stop trying to escape bad situations after learning that their efforts **don't change the outcome**.

Dog Experiment:

- Dogs learned to **escape a shock** by jumping to another compartment.
- But dogs **previously exposed to inescapable shocks** didn't try to escape in new situations.
- Even when escape was easy, they **just sat and endured the pain**—they had "learned" they were helpless.
- Some didn't even learn when shown how.

Application to Humans

- Some people react to uncontrollable life events with **apathy, withdrawal, and inaction** (e.g., depression).
- Example: Some prisoners in Nazi camps didn't rebel—not because they lacked will, but because they believed escape was impossible.
- Another example: **Women in abusive relationships** may feel helpless to leave due to **fear** or **financial dependence**.

COGNITIVE IMPAIRMENT - when stressed and become unable to think clearly.

- Trouble **focusing or concentrating**
- Disorganized thinking
- Being **easily distracted**
- Poor performance, especially on **complex tasks**

Two Main Causes:

1. Emotional Overload

- High levels of **anxiety, anger, or depression** make it harder to process information.
- The more emotional we are, the harder it is to think clearly.

2. Distracting Thoughts

- Stress makes our minds race with worries like:
 - *"What if I fail?"*

- *"Why can't I handle this better?"*

- These thoughts get in the way of focusing on the task.

PHYSIOLOGICAL REACTIONS TO STRESS

The body reacts to stressors by initiating a complex sequence of responses. If the perceived threat is resolved quickly, these emergency responses subside, but if the stressful situation continues, a different set of internal responses occurs as we attempt to adapt.

THE FIGHT-OR-FLIGHT RESPONSE - the body's mobilization to attack or flee from a threatening situation

- A pattern of bodily responses that prepares the organism for an emergency.

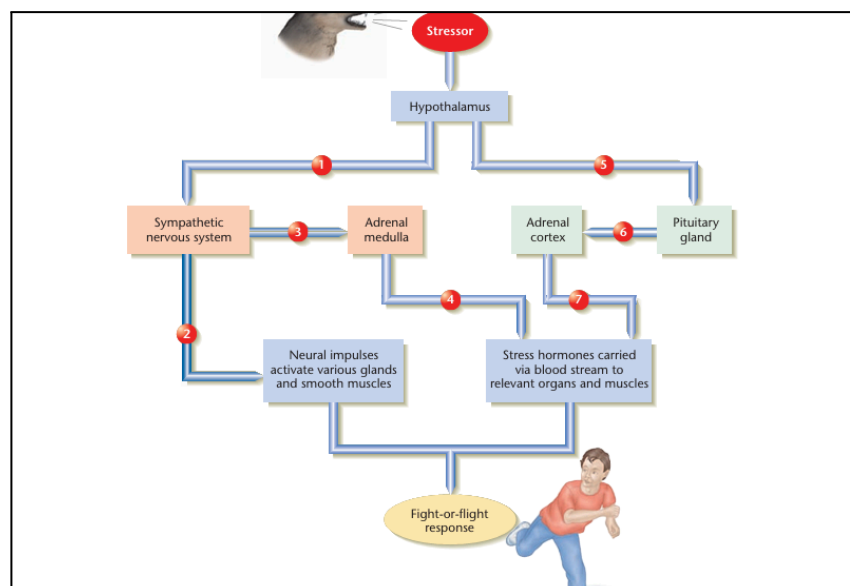
Body Reactions:

- Release of **glucose** for energy.
- Increased **heart rate, blood pressure, and breathing rate**.
- **Muscle tension** and **dry mouth** due to halted digestion.
- Release of **endorphins** (natural painkillers).
- **Spleen** releases red blood cells; **bone marrow** releases white blood cells.

Systems Involved:

Sympathetic nervous system: Directly activates muscles/organs and stimulates the **adrenal medulla** to release **epinephrine** and **norepinephrine**.

Adrenal-cortical system: Hypothalamus signals the **pituitary gland** to release **ACTH**, which causes the **adrenal cortex** to release **cortisol** and other hormones.



General Adaptation Syndrome (Hans Selye)

Phases:

1. **Alarm:** Initial shock and mobilization.
2. **Resistance:** Body fights or adapts to the stressor.
3. **Exhaustion:** Resources are depleted; risk of disease increases.

Diseases of adaptation: Caused by prolonged stress (e.g., ulcers, weakened immune system).

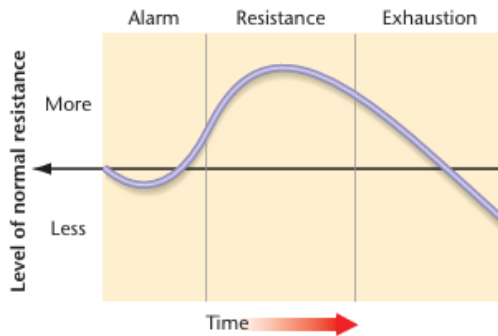


Figure 14.4 The General Adaptation Syndrome. According to Hans Selye, the body reacts to a stressor in three phases. In the first phase, alarm, the body mobilizes to confront the threat, which temporarily expends resources and lowers resistance. In the resistance phase, the body actively confronts the threat, and resistance is high. If the threat continues, the body moves into the exhaustion phase.

THE PHYSIOLOGY OF PTSD

People with PTSD:

- Are **more reactive** to trauma-related cues.
- Show increased activity in the **amygdala** and **anterior cingulate gyrus**.
- Often have **reduced hippocampus size**, affecting memory.

Cortisol Findings:

- After trauma, **low cortisol levels** may predict the development of PTSD.
- PTSD patients tend to have **lower resting cortisol**, possibly leading to prolonged sympathetic arousal and **stronger fear conditioning**

HOW STRESS AFFECTS HEALTH - Attempts to adapt to the continued presence of a stressor may deplete the body's resources and make it vulnerable to illness

Chronic stress wears wear and tear on the body—a condition known as **allostatic load**.

- This ongoing stress can weaken the **immune system**, making people more vulnerable to illness (e.g., colds, infections).

It can contribute to **physical disorders** such as:

Ulcers
High blood pressure
Heart disease

→ **PSYCHOPHYSIOLOGICAL DISORDERS** - physical disorders in which emotions are believed to play a central role.

- Common examples include **asthma, hypertension, colitis, ulcers, and arthritis**.

- The misconception is that these illnesses are “in the mind,” but in reality, they involve real **tissue damage and pain**.

- Stress-related ulcers look no different from those caused by other factors (like excessive aspirin use).

Personality and Illness

- Earlier studies tried to link specific stress reactions or **coping styles** with specific diseases (e.g., anger repression and colitis), but **most of these findings were not confirmed**.
- An exception is the link between **coronary heart disease (CHD)** and **Type A behavior** (competitive, impatient, aggressive).

Coronary Heart Disease (CHD)

- CHD is caused by **plaque buildup** in arteries that supply the heart, leading to **chest pain** or **heart attacks**.
- It is the **leading global cause of death**.
- **Risk factors** include:
 - Genetics
 - High blood pressure
 - High cholesterol
 - Diabetes
 - Smoking
 - Obesity
 - Chronic stress

Role of Stress in CHD

- A large study in 52 countries showed that **one-third of heart disease risk** is related to **stressful environments**.
- Jobs with **high demand and low control** (like assembly line work) are especially harmful—called “**high-strain**” jobs.
- A 10-year study found that people in such jobs had a **1.5x higher risk** of developing CHD.

Gender and Work-Related Stress

- **Working mothers** are at higher risk for heart disease than homemakers.
- The risk increases with the **number of children**.
- However, **job flexibility, income, and access to childcare help** reduce the negative effects

The Immune system

PSYCHONEUROIMMUNOLOGY - study of how the body's immune system is affected by stress and other psychological variables.

IMMUNE SYSTEM - protects the body from disease-causing micro-organisms. By means of specialized cells called *lymphocytes*

- affects the individual's susceptibility to infectious diseases, allergies, cancers, and autoimmune disorders (that is, diseases such as rheumatoid arthritis, in which the immune cells attack the normal tissue of the body).

- no single index of the quality of an individual's immune functioning, or immunocompetence.

Stress Weakens the Immune System

- **Cohen et al. (1991)** study: 400 healthy people were exposed to cold viruses.

- People with **higher stress levels** were **more likely** to develop colds.
- The correlation remained even after controlling for variables like age, smoking, and diet.

Real-Life Stress Events Also Lower Immunity

- **Natural disasters** (Hurricane Andrew, Northridge earthquake) caused poorer immune function.
- **Dental students** healed slower when injured before stressful exams (Marucha et al., 1998).

Control Matters

- **Animal studies:** Rats that could **control stress** (by turning off electric shocks) had **stronger immune responses** than rats that couldn't.
- **Tumor study:** Rats with controllable stress were more likely to **reject tumors** than those with uncontrollable stress.

Human Control Perception

- **Divorce study:** The partner who **initiated** the separation had better immune functioning.
- **Breast cancer study:** **Pessimistic women**, who felt less in control, were more likely to develop new tumors.

Psychological Support Can Help

- **Spiegel et al. (1989):** Breast cancer patients in **emotional support groups** lived **twice as long** as those who weren't.
- The group helped women:
 - Cope with death and pain
 - Feel more in control
 - Gain psychological strength
- Support also improves **post-surgery recovery** (less pain, faster healing, fewer complications).

How Does It Work?

- The **immune system** is linked to the **nervous system**.
- **Lymphocytes** have receptors for **neurotransmitters**, showing that brain and body communicate.
- Stress might influence immune responses through these pathways.

PSYCHOLOGICAL FACTORS AND STRESS RESPONSES

Events that are uncontrollable or unpredictable, or that challenge our views of ourselves, tend to be experienced as stressful. Some people appear more likely than others to appraise events in these ways. There are three basic theories about why some people are prone to appraise events as stressful: the psychoanalytic, behavioral, and cognitive theories

↳ **1. PSYCHOANALYTIC THEORY (Freud)** suggests that events are stressful when they arouse our unconscious conflicts.

- **Types of anxiety:**

- **Objective anxiety** – reasonable response to a harmful situation
- **Neurotic anxiety** – anxiety out of proportion to the actual danger, caused by unconscious internal conflict.

- **Core idea:** Stress arises when **unacceptable impulses** (e.g., hostility) conflict with **personal/social values**, leading to anxiety.
- **Example:** A woman who feels anger (not consciously) toward her mother may feel intense stress even during minor disagreements due to unconscious guilt or fear of losing love/support.

› **2. BEHAVIORAL THEORY** argue that people react to specific situations with fear and anxiety because those situations caused them harm or were stressful in the past.

Core idea: Stress and fear responses are **learned** through **classical conditioning**.

Example: A person may fear heights after a traumatic near-accident on a mountain road.

Avoidance behavior keeps fears alive because the person doesn't get the chance to learn that the situation is no longer dangerous.

- **Important point:** Past punishment or negative experience teaches people to fear or avoid certain situations (e.g., a child punished for being assertive avoids speaking up even when it's safe).

› **3. COGNITIVE THEORY** argue that people's level of optimism affects their health. Optimistic people show better immune system functioning and engage in healthier behaviors

Core idea: A person's **outlook (optimism vs. pessimism)** influences their stress response and health.

- **Research findings:**

Pessimists have more stress, poorer recovery (e.g., after surgery), and higher risk for illness (e.g., cardiac disease, HIV progression).

Chronic pessimism can raise **blood pressure** and **weaken immune functioning**.

Optimists handle stress better and are more likely to engage in **health-promoting behaviors** (e.g., good diet, rest, exercise).

HARDINESS

Core idea: Some people are naturally more **resistant to stress** because of their **personality traits**:

Hardy people tend to see stressful events as challenges and have a strong sense of personal control; these characteristics may protect against the development of illness in the face of stress.

- **Commitment** – staying engaged with life and relationships.
- **Control** – belief in one's ability to influence events.
- **Challenge** – viewing change as an opportunity, not a threat

Findings: Stress-resistant individuals tend to stay healthier, even under the same stressful conditions, because of their positive mindset and active involvement.

FINDING MEANING

Core idea: People who face trauma can experience **personal growth** and **find deeper meaning** in life.

People who are able to find meaning in a traumatic event are less likely to develop emotional problems.

Common outcomes:

- New **inner strength**, **perspective**, and **appreciation for life**.
- Stronger **relationships** and sense of **purpose**.

› **THE TYPE A PATTERN** A personality style identified by **Friedman and Rosenman (1974)** that is characterized by **competitiveness, impatience, hostility, time urgency**, and a **drive to accomplish more in less time**.

These traits were first observed in patients suffering from **Coronary Heart Disease (CHD)**

Common Type A Behaviors (from Table 14.2):

- Doing multiple tasks at once
- Rushing others' speech
- Getting irritated in lines or traffic
- Always needing to be on time
- Impatience and competitiveness (even in games with children)
- Physical signs: knee jiggling, rapid blinking, explosive speech, and gestures

TYPE B INDIVIDUALS

The opposite of Type A—**relaxed, patient, easygoing**, and able to work or rest without guilt. They are **less likely to develop CHD**.

Health Link: Type A and CHD

Research Findings:

Type A men were found to have **twice the risk** of developing **Coronary Heart Disease** compared to Type B men.

- This was true **even after controlling for** smoking, diet, and age.

Later studies showed that **hostility**, a key component of Type A, was the **strongest predictor** of CHD—not all Type A traits equally.

Examples of Hostility as a CHD Predictor:

- **Hostile lawyers** were **5 times more likely** to die before age 50.

- **Physicians with high hostility scores** were significantly more likely to suffer from **heart disease and early death**.

Biological Mechanism: How Type A Leads to CHD

Exaggerated **stress response** in Type A individuals includes:

- Increased **blood pressure**
- Elevated **heart rate**
- Higher levels of **stress hormones** like cortisol

These chronic stress responses can **damage the heart and blood vessels**, contributing directly to **CHD**.

Social Effects

- Hostile people often experience **more interpersonal conflict** and **less social support**.
- **Low social support** is another known risk factor for **poor cardiovascular health**, including CHD.

Good News

- **Type A behaviors can be changed** through therapy and stress management techniques.
- Reducing hostility and time urgency has been shown to **significantly lower the risk of Coronary Heart Disease**.

People with the type A behavior pattern tend to be hostile, aggressive, impatient individuals who are overinvolved in their work. Studies of men and women show that people who exhibit this pattern are at increased risk for coronary heart disease.

COPING SKILLS

COPING - is used to refer to the process by which a person attempts to manage stressful demands, and it takes two major forms.

1. PROBLEM-FOCUSED COPING

A person can focus on the specific problem or situation that has arisen, trying to find some way of changing it or avoiding it in the future.

2. EMOTION-FOCUSED COPING

A person can also focus on alleviating the emotions associated with the stressful situation, even if the situation itself cannot be changed.

It includes:

- **Behavioral strategies:** exercise, venting, using substances, or seeking support.
- **Cognitive strategies:** reappraising the situation or distracting oneself.

Seeking emotional support from others is generally helpful and reduces stress responses. However, poor-quality or conflict-filled relationships can worsen physical and emotional health, including affecting the immune system.

Avoidant Coping - Avoiding or denying emotions can lead to worse health outcomes, such as increased pain, slower recovery, more risky behaviors, and even faster disease progression in conditions like HIV, cancer, and heart failure.

Disclosure and Writing - Expressing emotions, especially through writing about trauma, has been shown to improve immune function and reduce health visits. Finding meaning in negative events helps reduce emotional and physical stress.

Rumination - Overthinking or obsessively dwelling on stressors without taking action can prolong depression, especially when combined with isolation or social conflict.

People who take active steps to solve problems are less likely to experience depression and illness following negative life events.

People who use rumination or avoidance strategies to cope with negative emotions show longer and more severe distress after negative events than people who seek social support or reappraise an event to cope with their emotions.

MANAGING STRESS

Behavioral techniques

1. ***Biofeedback and relaxation training*** - attempt to teach people how to control their physiological responses by learning to recognize tension and reduce it through deep muscle relaxation and concentration.

2. ***Exercise*** can help people cope with stress over the long term.

3. ***Cognitive behavior therapy*** attempts to help people recognize and modify their cognitive and behavioral responses to stress.

Type A behavior can be changed through behavioral and cognitive techniques, resulting in reduced risk of coronary heart disease

Lesson 15: Psychological Disorders

› **DEFINING ABNORMALITY:**

ABNORMAL BEHAVIOR is identified based on subjective criteria, signs, and symptoms, as no objective test currently exists to distinguish it from normal behavior even in this age of rapid technological advances.

Abnormality is defined using **four criteria**. All are considered together, as no single criterion fully defines it.

1. **Deviation from cultural norms** can define Abnormality, which varies between societies and over time. Cultural relativists argue that each culture's definitions of abnormality should be respected to avoid imposing one culture's standards on another. However, history shows that labeling individuals as abnormal can justify control or persecution, and societal views on what is considered abnormal can change over time.
2. **Deviation from statistical norms:** Many characteristics, like height, weight, and intelligence, vary across a population, with most people falling in the middle range. Abnormality can be defined as deviation from statistical norms, meaning behaviors, thoughts, or feelings that are statistically infrequent. However, this definition could classify someone who is extremely intelligent or happy as abnormal, so we must consider more than just statistical frequency when defining abnormality.
3. **Maladaptive behavior** is defined by its adverse effects on the well-being of individuals or society, rather than by deviation from statistical or societal norms. Such behaviors can hinder personal welfare, like extreme fear of crowds or heavy alcohol use, or be harmful to society, like violent outbursts or paranoid plots. This criterion highlights that behaviors causing significant harm or disruption are considered abnormal.
4. **Personal distress** is considered a criterion for abnormality based on an individual's subjective feelings of anxiety, depression, or physical symptoms like insomnia or loss of appetite. Often, those diagnosed with mental disorders feel deeply miserable, and sometimes this distress is the only symptom, even if their behavior seems normal to others.

No single definition of abnormality is fully sufficient: usually, social deviation, statistical frequency, maladaptive behavior, and personal distress are all considered when diagnosing mental health issues.

» **What is NORMALITY?** Normality is hard to define, but most psychologists agree that the following list of traits indicating emotional well-being are present to a greater degree in normal individuals than in those with mental health problems.

1. **Appropriate perception of reality:** Healthy individuals have an appropriate perception of reality, realistically appraising their reactions and capabilities, interpreting events correctly, and neither overrating nor underrating their abilities.
2. **Ability to exercise voluntary control over behavior:** Healthy individuals feel fairly confident about their ability to control their behavior, occasionally acting impulsively but generally restraining urges and making voluntary decisions.
3. **Self-esteem and acceptance:** Well-adjusted people have self-esteem, feel accepted, are comfortable in social situations, and maintain their opinions without feeling worthless or alienated.
4. **Ability to form affectionate relationships:** Healthy individuals can form close, satisfying relationships, showing sensitivity to others' feelings without making excessive demands, whereas those with mental health problems may struggle with self-centeredness and fear of intimacy due to past destructive relationships.
5. **Productivity:** Well-adjusted people channel their abilities into productive activities, are enthusiastic about life, and generally meet daily demands without excessive effort, while chronic lack of energy and fatigue can indicate unresolved psychological issues.

» **Classifying Mental Health Problems** ICD-10 and DSM-IV are the primary classification systems used for diagnosing mental health problems. These systems help professionals categorize and communicate about various mental disorders by grouping similar symptoms together.

- **International Classification of Diseases** (known as **ICD-10**), published by the World Health Organization, is used internationally, while **Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)**, from the American Psychiatric Association, is primarily used in the United States. Such classification systems help communicate information and provide a basis for research
- Classifying mental health problems traditionally distinguishes between **NEUROSES**,

characterized by anxiety and maladaptive behavior, and **PSYCHOSES**, which involve severe disturbances in behavior and thought, often requiring hospitalization, with ICD-10 and DSM-IV offering more precise definitions.

- **Cultural / Sociological Perspective:** Considers mental health problems as influenced by social and environmental factors, such as discrimination and poverty, emphasizing the role of cultural context.

VULNERABILITY-STRESS MODEL explains mental health problems as the result of an interaction between a

person's predisposition (genetic or psychological) and environmental stressors. Both factors are necessary, as vulnerability alone does not lead to issues without stress, and responses to stress vary among individuals.

Categories of mental disorders

Listed here are the main diagnostic categories of mental disorders in the ICD-10. Each category includes numerous subclassifications.

Category	Description
Organic, including symptomatic, mental disorders	Cognitive impairment due to brain disease or injury, such as Alzheimer's disease, delirium, and organic amnesia.
Mental and behavioral disorders due to psychoactive substance use	Misuse of, and dependence on, psychoactive substances, including alcohol, illicit drugs, and prescription drugs.
Schizophrenia, schizotypal and delusional disorders	Disorders characterized by distortions of thought and perception and emotions that are inappropriate or blunted. At some phase, delusions and hallucinations usually occur.
Mood (affective) disorders	Disturbances of normal mood; the individual may be extremely depressed, abnormally elated, or may alternate between periods of elation and depression.
Neurotic, stress-related and somatoform disorders	Disorders characterized by excessive anxiety, extreme and persistent reactions to stress, and alterations in consciousness and identity due to emotional problems, and presentation of physical symptoms that appear to have no medical basis.
Behavioral syndromes associated with physiological disturbances and physical factors	Eating disorders, sleep disorders, sexual disorders, and disorders occurring during the postpartum period.
Disorders of adult personality and behavior	Long-standing patterns of maladaptive behavior that constitute immature and inappropriate ways of coping with stress or solving problems. Examples are antisocial personality disorder and paranoid personality disorder.
General learning disability	Arrested or incomplete development of mind, resulting in impairment of skills.
Disorders of psychological development	Disorders with onset in childhood resulting in impairment or delay of language, visual-spatial, and motor skills.
Behavioral and emotional disorders with onset usually occurring in childhood and adolescence	Hyperkinetic disorders (difficulties in persistence and attention, hyperactivity), conduct disorders (antisocial behavior), emotional disorders, difficulties in attachment, tic disorders, and various other problems first occurring in childhood or adolescence.

» **Perspectives on Mental Health Problems:** Theories about the causes of mental health problems and proposals for treating them can be grouped according to perspectives:

- **Biological Perspective** (also called the **medical or disease model**): Mental health problems are due to brain disorders, genetic irregularities, and neurochemical dysfunctions, often treated with medication.
- **Psychoanalytic Perspective:** Focuses on unconscious conflicts and defense mechanisms from early childhood, bringing these conflicts into awareness to alleviate disorders.
- **Behavioral Perspective:** Views mental health issues as learned behaviors through conditioning and reinforcement.
- **Cognitive Perspective:** Attributes mental health problems to maladaptive cognitive processes, which can be improved by changing biased thinking patterns.

» **ANXIETY DISORDERS.** Anxiety is a normal response to stress but becomes unhealthy when it occurs in situations most people can handle easily.

Anxiety disorders include generalized anxiety, panic disorders, phobic disorders, and obsessive-compulsive disorder.

It involves persistent anxiety as a primary symptom or as a response to controlling maladaptive behaviors, with four key symptoms: **physiological** (e.g., rapid heart rate, sweating), **cognitive** (e.g., fear of dying), **behavioral** (e.g., freezing or avoidance), and **emotional** (e.g., dread or terror).

» **Understanding Panic Disorder and Agoraphobia**

PANIC DISORDER involves recurrent panic attacks characterized by intense fear and physical symptoms like heart palpitations, shortness of breath, and nausea.

It becomes a disorder when these attacks are frequent and lead to persistent worry about future attacks.

- **Prevalence:** While 28% of adults experience occasional panic attacks during stress, only about 2.1% of European adults develop panic disorder. It usually starts between late adolescence and mid-30s and often becomes chronic if untreated.
- **Symptoms:** Symptoms include overwhelming fear, physical reactions such as trembling, faintness, sweating, and nausea, and a fear of dying, losing control, or "going crazy."

- Panic disorder runs in families, suggesting a genetic predisposition, though it is not entirely hereditary as shared environments also play a role; an overactive fight-or-flight response further contributes to triggering attacks.

- Panic disorder may result from abnormal brain activity in areas like the amygdala and hippocampus, disrupted neurotransmitter systems (e.g., GABA and serotonin), and an overreactive fear response.

Through **interoceptive conditioning**, individuals associate slight bodily sensations with panic, triggering conditioned fear responses, which, combined with catastrophic thinking and hypervigilance, increase the likelihood of recurring panic attacks.

Cultural Variant - **Ataque de Nervios:** Common in Latino cultures, especially in the Caribbean.

- **Symptoms:** Sudden trembling, uncontrollable crying or screaming, aggression, fainting, and seizure-like episodes. **Triggers:** Often linked to stress or spiritual beliefs.

Related Disorder - **AGORAPHOBIA:** Defined by fear of being in places where escape or help seems impossible during an emergency, often linked to panic attacks. About 20% of people with panic disorder develop agoraphobia.

- **Triggers:** Crowded spaces, enclosed areas, or open spaces. **Symptoms:** Avoidance of feared places, reliance on "safe" zones, or needing company to venture out. **Impact:** Severely limits daily functioning and may lead to substance abuse.

- Agoraphobia often develops from panic disorder as individuals associate certain places with past panic attacks

and avoid them, reinforcing their anxiety through classical and operant conditioning. Safety behaviors, like staying in "safe" places or relying on a "safe person," further limit their movements. Studies support this cognitive-behavioral theory, showing that beliefs about control and the presence of a safe person can significantly reduce panic symptoms.

» **PHOBIAS** is an intense and irrational fear of a stimulus or situation that most people do not find particularly dangerous.

Unlike ordinary fears, a phobia is considered a **phobic disorder** when it significantly disrupts daily life, causing anxiety or panic that can only be relieved through avoidance.

Phobic disorders are categorized into **three types**:

1. **Simple phobias:** Fears of specific objects, animals, or situations (e.g., snakes, heights, enclosed spaces). These are the most common and can range from isolated fears to multiple phobias affecting daily life.
2. **Social phobias:** Intense fear of social situations due to a heightened worry of embarrassment or judgment (e.g., fear of public speaking or eating in public). This often leads to avoidance of social interactions and, if untreated, can become chronic.
3. **Agoraphobia:** Fear of situations where escape might be difficult, often leading to avoidance of open or crowded places.

» **Understanding Phobias:** *Freud's psychodynamic theory* suggests phobias emerge when unconscious anxieties are displaced onto symbolic objects, as seen in Little Hans' case (Oedipal conflict leading to a horse phobia) but was later questioned. Behavioral theories argue that phobias develop through conditioning after *traumatic experiences*, while hereditary factors also play a role, with first-degree relatives being three to four times more likely to have a phobia due to *genetic predisposition*. Twin studies further support genetics as a contributing factor.

» **OBSESSIVE-COMPULSIVE DISORDER (OCD)** is characterized by persistent **obsessions** (intrusive thoughts, images, or impulses causing anxiety) and **compulsions** (ritualistic behaviors to reduce anxiety).

- Obsessive thoughts, like fear of contamination, often lead to compulsive acts, such as excessive washing. Common compulsions include checking and washing. '**Checkers**' repeatedly verify tasks like locking doors, while '**washers**' are compulsively clean to avoid perceived contamination.

Both groups struggle with doubt and anxiety about preventing harm.

- OCD and phobias both involve severe anxiety, but phobias are triggered by specific objects or situations and don't involve ritualistic behavior. OCD involves irrational fears often unrelated to actual threats. OCD affects 1-3% of people worldwide and often begins at a young age, with its prevalence consistent across different countries and cultures.

» **Understanding obsessive-compulsive disorder:**

People with OCD struggle to "turn off" intrusive thoughts due to rigid, moralistic thinking and a belief that they must prevent harmful outcomes. They feel responsible for these thoughts, often judging them as unacceptable and becoming more anxious and guilty, which makes it harder to dismiss them. This anxiety may lead to compulsions, where performing certain behaviors temporarily alleviates the anxiety, reinforcing the compulsion

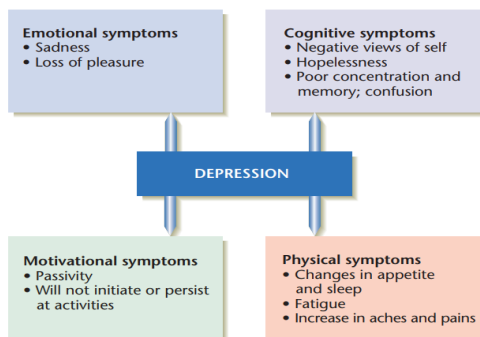
» **MOOD DISORDERS** include **depressive disorders**, characterized by periods of depression without mania, and **bipolar disorders**, where individuals alternate between depression and mania.

Manic episodes without a history of depression are rare.

» **DEPRESSION**: is more than just sadness; it includes emotional, cognitive, motivational, and physical symptoms.

People with depression often experience **anhedonia**, where they lose the ability to feel joy, even during positive events.

- It is common, affecting about 13% of people, with women being twice as likely as men to experience it. Depression can last for weeks, interfering with normal functioning, but treatment through therapy or medication can shorten episodes and prevent relapses



» **BIPOLAR DISORDER**, also known as **manic-depression**, is a mood disorder where individuals

alternate between extreme lows (depression) and highs (mania).

During manic episodes, individuals experience high energy, confidence, and impulsive behavior, while depressive episodes can be severe. The cycles vary, sometimes with brief periods of normality between the extremes.

Bipolar disorder affects less than 2% of the population, is more likely to run in families, and is equally common in men and women. It responds to specific treatments but often recurs without them.

» **Understanding Mood Disorders** A combined biological and psychological model best explains mood disorders like depression and bipolar disorder, suggesting that biological vulnerabilities and life events, along with negative thinking patterns, increase the likelihood of developing these conditions.

The Biological Perspective:

- **Hereditary Links:** Bipolar disorder strongly runs in families, with first-degree relatives having a much higher risk. Twin studies also confirm a significant genetic component.
- **Biochemical Causes:** Abnormalities in neurotransmitters like norepinephrine, serotonin, and dopamine are linked to mood disorders.

Table 15.4

Cognitive distortions in depression According to Beck's theory, these are the principal errors in thinking that characterize depressed individuals.

Overgeneralization	Drawing a sweeping conclusion on the basis of a single event. For example, a student concludes from his poor performance in one class on a particular day that he is inept and stupid.
Selective abstraction	Focusing on an insignificant detail while ignoring the more important features of a situation. For example, from a conversation in which her boss praises her overall job performance, a secretary remembers the only comment that could be construed as mildly critical.
Magnification and minimization	Magnifying small bad events and minimizing major good events in evaluating performance. For example, a woman gets a small dent in her car fender and views it as a catastrophe (magnification), while the fact that she gave an excellent presentation in class does nothing to raise her self-esteem (minimization).
Personalization	Incorrectly assuming responsibility for bad events in the world. For example, when rain dampens spirits at an outdoor buffet, the host blames himself rather than the weather.
Arbitrary inference	Drawing a conclusion when there is little evidence to support it. For example, a man concludes from his wife's sad expression that she is disappointed in him; if he had checked out the situation, he would have discovered that she was distressed by a friend's illness.

- **Brain Structure:** Neuroimaging shows changes in the prefrontal cortex, hypothalamus, and amygdala, affecting emotional regulation and stress response.

The Cognitive Perspective:

- **Aaron Beck's Cognitive Triad:** Depressed individuals have negative thoughts about the self (e.g., "I am worthless"), present experiences (current life), and the future (hopelessness).

These beliefs often develop during childhood or adolescence due to experiences like parental loss, peer rejection, or criticism

Formation of Negative Beliefs: Negative beliefs are formed early and reactivated by similar situations, leading to systematic thinking errors (cognitive distortions) that reinforce depression.

Attributional Style and Depression: People prone to depression often attribute negative events to internal causes ("my fault"), stable factors ("it will last forever"), and global effects ("it impacts everything"). A pessimistic attributional style increases vulnerability to depression.

- **Cognitive Processes in Depression:**
 - **Rumination:** Depressed individuals repeatedly focus on problems without solving them, which can predispose them to further depression.
 - **Biases in Attention and Memory:** They focus more on negative stimuli (e.g., sad faces) and selectively recall negative information, reinforcing negative beliefs and ruminative tendencies.

Studies show individuals with negative thinking patterns or pessimistic attributional styles are significantly more likely to experience depression, even without prior episodes.

Interpersonal Perspective:

- **Dependency on Others:** Depressed individuals often rely heavily on the opinions and support of others, seeking constant reassurance that they are accepted and loved.
- **Excessive Reassurance Seeking:** Despite receiving affirmations, they doubt them and repeatedly seek more, causing frustration or hostility in their relationships.
- **Sensitivity to Rejection:** Depressed individuals are more sensitive to rejection, increasing their insecurities and reinforcing their depressive tendencies.
- **Social Withdrawal:** Excessive reassurance seeking can lead to the withdrawal of social support, further worsening depression.
- **Interpersonal Difficulties:** They often struggle with social skills, have conflict-prone relationships, and actively seek negative feedback to confirm their negative self-views.

Psychosocial factors in bipolar disorder: While bipolar disorder has strong genetic roots, psychosocial factors like stressful life events and an unsupportive family can trigger or worsen episodes. Psychotherapy aimed at improving a toxic family atmosphere and teaching stress management reduces the risk of relapse.

› **SCHIZOPHRENIA**, affecting about 1% of the population equally in men and women, is a severe mental disorder where individuals experience symptoms like **believing others are conspiring against them, their thoughts are being controlled, or transmitted into their minds.**

It usually begins in late adolescence or early adulthood, causing difficulty in distinguishing reality and responding to everyday events, often leading to immobilization.

The disorder imposes significant personal and societal costs, including stigma, and requires frequent medical and psychiatric interventions.

» **Characteristics of Schizophrenia:** Schizophrenia can develop gradually through increasing seclusiveness and inappropriate behavior or suddenly with intense confusion and emotional turmoil, often triggered by stress in individuals prone to isolation and insecurity.

The symptoms are varied, and while not all individuals with schizophrenia exhibit every characteristic, they can generally be summarized under specific headings.

Disturbances of Thought and Attention: Schizophrenia involves both **disordered thinking processes** and content, with symptoms like ***word salad*** and ***loosening of associations***, where unrelated ideas are linked together. People with schizophrenia often struggle with focusing attention, leading to confusion and difficulty filtering irrelevant stimuli, and they frequently experience delusions, such as thoughts being controlled or persecutory beliefs, which can vary across cultures. **Most people with schizophrenia are not a danger to others,** but their confusion can make them a danger to themselves.

Disturbances of Perception: People with schizophrenia often **experience altered perceptions**, such as distorted body images and intensified sensory stimuli, as well as **hallucinations**. ***Auditory hallucinations***, where voices comment on or command actions, are the most common, followed by less frequent ***visual hallucinations*** of strange creatures or beings, and rare ***sensory hallucinations*** involving smells, tastes, or physical sensations. These voices, similar to internal dialogues, create confusion between what is real and imagined, as individuals with schizophrenia struggle to distinguish between external and internal experiences.

Disturbances of Emotional Expression: People with schizophrenia often exhibit emotional responses that are out of sync with the situation, such as being unresponsive to distressing news or smiling when discussing tragic events, which reflects their inner turmoil and disorganized thinking, as their emotions can be influenced by a mixture of unrelated thoughts, causing their reactions to appear disconnected or inappropriate to others.

» **Motor Symptoms and Withdrawal from Reality:**

People with schizophrenia may **display bizarre motor activity**, such as grimacing, repetitive gestures, or extreme states of agitation and immobility, including catatonic postures where they remain motionless for long periods, often responding to internal thoughts and fantasies.

Decreased Ability to Function: People with schizophrenia often experience a significant **decline in their ability to perform daily tasks**, such as struggling with schoolwork, work, personal hygiene, and social interactions. This decline can be rapid, as seen in the case of one individual whose **physical and mental deterioration** led to poor hygiene, erratic behavior, and a loss of social and academic function.

» **Culture and the Progression of Schizophrenia:**

Schizophrenia tends to be more chronic and debilitating, with many individuals being **rehospitalized** after their initial episode, though some recover significantly over time. Cultural differences play a role in the progression of the disorder, as individuals in developing countries often receive more support from extended family, which can lead to better long-term outcomes compared to those in developed countries where family support is less prevalent.

» **Understanding Schizophrenia:** Schizophrenia likely has strong biological roots, but environmental stress can exacerbate the disorder or trigger new episodes of psychosis.

The Biological Perspective

- Genetic Risk: Family studies show a hereditary predisposition for schizophrenia. People with **close genetic relatives** who have schizophrenia are more likely to develop the disorder:
 - Identical twins: 46% chance of developing schizophrenia. Fraternal twins: 17% chance. Siblings: 10% chance. Unrelated individuals: 1% chance.
- Brain Structure and Biochemistry:
 - Individuals with schizophrenia often have **smaller prefrontal cortices** and

enlarged ventricles, suggesting brain deterioration. The prefrontal cortex, responsible for cognition and social interaction, plays a significant role in the disorder.

- **Dopamine imbalance** is a key factor, with excess activity in the mesolimbic system causing hallucinations and delusions, and low activity in the prefrontal cortex leading to cognitive and emotional deficits.

- Perinatal Factors: Studies indicate that individuals with schizophrenia are more likely to have had **birth complications, brain damage during infancy**, infections like meningitis, and maternal pregnancy issues. These factors contribute to the increased likelihood of developing schizophrenia.

The Social and Psychological Perspective

- **Family-related Stress:** Psychosocial factors, particularly family-related stress, significantly influence the severity of schizophrenia and can trigger new episodes of psychosis in those with a biological predisposition. Family environments that are high in expressed emotion—characterized by overinvolvement, overprotection, and critical or hostile attitudes—are particularly detrimental.
 - **Expressed Emotion and Relapse:** Individuals with schizophrenia whose families exhibit high levels of expressed emotion are **3 to 4 times more likely** to experience new psychotic episodes than those in families with low expressed emotion. This heightened emotional stress can overwhelm the individual's ability to cope.
 - **Alternative Explanations:** Critics argue that hostility and intrusiveness in families might stem from the schizophrenic symptoms themselves, especially the negative symptoms (e.g., lack of motivation). Additionally, families with high expressed emotion may also have a higher genetic predisposition toward psychopathology, **influencing relapse rates**.

PERSONALITY DISORDERS are long-standing patterns of maladaptive behavior that significantly impair an individual's ability to function in daily life, beginning in childhood or adolescence and persisting over time.

These disorders, such as **antisocial personality disorder** and **borderline personality disorder**, involve highly distressing emotions, thoughts, and behaviors that vary by disorder and often overlap, making classification challenging.

» **ANTISOCIAL PERSONALITY DISORDER (APD)** sometimes referred to as **psychopathy** or **sociopathy**, is characterized by a lack of responsibility, morality, and concern for others, with individuals primarily driven by their own needs and desires.

Causes include membership in delinquent subcultures, impulsivity, and the inability to control behavior, with affected individuals often showing deceitfulness, impulsivity, and a lack of remorse. APD is more common in men (about 3%) than in women (1%) and is relatively rare overall.

» **Understanding Antisocial Personality Disorder:** Development influenced by biological determinants, quality of parent-child relationship, and thought patterns promoting antisocial behaviors.

Biological Factors:

- **Genetics:** Heritable traits, especially those appearing early in childhood.
- **Impulsivity:** Linked to low levels of serotonin.
- **Executive Function Deficits:** Poor concentration, abstract reasoning, goal setting, self-monitoring, and adaptive behavior.
- **Brain Structure:** Differences in temporal and frontal lobes, possibly due to genetics or early exposure to toxins.
- **Arousability:** Low levels of arousal, leading to low fear response, potentially contributing to fearlessness and antisocial behavior.
 - Chronically low arousal may drive individuals to seek stimulation, sometimes through dangerous or impulsive acts.

Social Factors:

- **Environmental Influence:** Children with a biological predisposition to antisocial behavior are less likely to develop the disorder without exposure to environments that promote such behavior.

- **Parental Role:** Parents of antisocial children are often neglectful and hostile, leading to unsupervised, uninvolved, and hostile interactions.
 - **Parenting Style:** Ineffective, harsh, or inconsistent parenting increases the risk of antisocial behaviors in children, especially those with neuropsychological deficits.
- **Biological and Family Factors:** Contributing factors include maternal drug use, poor prenatal nutrition, exposure to toxins, and psychological issues in parents, leading to neuropsychological problems in children.

Personality Factors:

- **Social Interaction Processing:** Children with antisocial personalities interpret social interactions as aggressive and assume peers will act aggressively toward them. They believe negative actions by peers are intentional rather than accidental.
- **Aggressive Responses:** Tend to think of a narrow range of aggressive responses to perceived provocations, seeing non-aggressive responses as ineffective.
 - Aggressive behaviors lead to retaliation and punishment, reinforcing their belief that the world is against them and perpetuating a cycle of antisocial behaviors.

» **BORDERLINE PERSONALITY DISORDER (BPD)** is characterized by extreme mood swings, unstable relationships, and an inconsistent self-concept.

Individuals with BPD often experience impulsive and self-damaging behaviors, such as self-mutilation or suicide attempts, and may feel desperately empty, ***misinterpreting others' actions as rejection***.

This disorder, which is more common in women, can lead to difficulties in relationships, work, and physical health, with about 10% of individuals with BPD dying by suicide. It often co-occurs with other disorders like substance abuse and depression.

» **Understanding Borderline Personality Disorder**

- Caregivers of individuals with borderline personality disorder (BPD) may have **encouraged excessive dependence** and punished attempts at developing autonomy.

- This leads to difficulty integrating positive and negative self-views and views of others, causing emotional instability and interpersonal difficulties.
- People with BPD often report childhoods marked by **instability, abuse, neglect, and parental psychopathology**, which is common in many types of psychopathology, not just BPD.
- They struggle with emotional regulation, experiencing extreme emotional reactions, and may rely on others for support in manipulative or indirect ways.

» **PERVASIVE DEVELOPMENTAL DISORDERS (PDDs)**

are a group of childhood disorders characterized by significant impairments in social interactions, communication, and daily activities.

AUTISM, the most well-known of these disorders, involves deficits in social interaction and communication, and often includes intellectual disabilities or exceptional skills in some individuals.

» **Diagnosis of AUTISM.** Autism involves three main types of deficits:

1. **Social Interaction Deficits:** Children with autism often do not connect with others, even their parents, from infancy. They may not smile, coo, or initiate play, and lack interest in socializing with peers. This is often accompanied by resistance to change and intense temper tantrums. Autism was once thought to be a precursor to schizophrenia, but studies have shown that individuals with autism do not develop typical schizophrenia symptoms in adulthood.
2. **Communication Deficits:** Children with autism often struggle with speech and communication, such as using echolalia (repeating words or phrases) and difficulty modulating voice or using language expressively.
3. **Restricted Interests and Repetitive Behaviors:** Rather than engaging in imaginative play, children with autism may focus obsessively on specific parts of toys or objects. They may also follow rigid routines and rituals and become upset if these are disrupted. Self-stimulatory behaviors, like hand-flapping, are common.

Many children with autism have moderate to severe intellectual impairments, with 50-70% showing difficulties on IQ tests. However, some may demonstrate exceptional abilities in areas like music, drawing, memory, or mathematics, though these cases are rare. Autism varies widely in severity and outcome. Epidemiological studies

estimate autism prevalence at about 5 in 10,000 children, with a male-to-female ratio of about 3:1.

» **Asperger's Syndrome and other Pervasive**

Developmental Disorders Pervasive developmental disorders include Asperger's syndrome, Rett's disorder, and childhood disintegrative disorder.

RETT'S AND CHILDHOOD DISINTEGRATIVE

DISORDER: These conditions involve normal development initially, followed by a significant and permanent loss of skills in social interaction, language, and movement.

ASPERGER'S SYNDROME: Characterized by difficulties in social interaction and repetitive behaviors similar to autism, but *without delays in language or cognitive development in the first few years.*

Children with Asperger's often have average IQs and may become obsessed with specific topics. They tend to have difficulty forming relationships and may speak in a formal manner, sometimes referred to as "little professor syndrome."

- Asperger's syndrome and other disorders are often **considered part of the autism spectrum**, with autism being the most severe form. Worldwide, approximately 1 in 166 children are affected by some autism spectrum disorder.

» **Understanding Pervasive Developmental Disorders:**

PDDs have been studied through various theories, with early views suggesting that poor parenting, especially "cold" or "refrigerator mothers," contributed to the disorder. However, research has shown that parenting does not play a significant role in the development of autism.

Biological Factors:

- **Genetics:** Family and twin studies show a strong genetic link, with siblings of children with PDDs being more likely to have the disorder. Monozygotic twins have a higher concordance rate for autism compared to dizygotic twins.
- **Neurological Factors:** PDDs are associated with disruptions in brain development. Children with PDDs often have larger brain volumes and abnormal growth in areas like the cerebellum and amygdala. Approximately **25% of children** with PDDs develop seizure disorders.
- **Brain Abnormalities:** Children with PDDs show greater brain volume and growth abnormalities in areas like the cerebellum, cerebrum, amygdala, and hippocampus.

- **Brain Functioning:** Neuroimaging studies reveal that children with PDDs show less activation in brain areas related to facial perception and social understanding. They often struggle with theory of mind, which hinders their ability to understand and predict the behavior of others, contributing to social interaction difficulties.

Lesson 16: Treatment of Mental Health Problems

- Treatment of the mentally ill has progressed from the ancient notion that abnormal behavior resulted from

HISTORICAL BACKGROUND

» In ancient times, mental illness was believed to be caused by **supernatural forces**.

Treatments included exorcisms, trephination (drilling holes in the skull), and isolation.

» During the Middle Ages and Renaissance, mentally ill individuals were often **confined in asylums**, sometimes in harsh and inhumane conditions.

» The 18th–19th centuries brought reform through **moral treatment**, promoting compassion and structured care in mental institutions.

» In the 1800s, scientists discovered that some mental illnesses had biological causes.

Example: **GENERAL PARESIS** – a severe mental and physical disorder characterized by cognitive decline, personality changes, and paralysis.

general paresis was later found to be caused by untreated syphilis, proving that mental illness could have a physical/medical basis.

» The 20th century introduced **psychotropic medications**, such as antipsychotics and antidepressants, helping manage symptoms and reducing the need for institutionalization.

» In the 1950s–1980s, a movement called **deinstitutionalization** began.

DEINSTITUTIONALIZATION is the process of releasing patients from long-term psychiatric hospitals and shifting to community-based care, where they would receive outpatient services.

This aimed to improve patient quality of life, but often failed due to lack of proper community support.

- never adequately funded and, despite its good intentions, has added to the number of homeless mentally ill individuals, causing concern about civil rights and adequate care.

» Modern mental health care focuses on a **biopsychosocial approach**, integrating medical, psychological, and social perspectives.

Methods of therapy

Type of therapy	Example	Description
Behavior therapies	Systematic desensitization	The client is trained to relax and then presented with a hierarchy of anxiety-producing situations and asked to relax while imagining each one.
	In vivo exposure	Similar to systematic desensitization except that the client actually experiences each situation.
	Flooding	A form of in vivo exposure in which a phobic individual is exposed to the most feared object or situation for an extended period without an opportunity to escape.
	Selective reinforcement	Reinforcement of specific behaviors, often through the use of tokens that can be exchanged for rewards.
Modeling	A process in which the client learns behaviors by observing and imitating others; often combined with behavioral rehearsal (e.g., in assertiveness training).	
Cognitive-behavior therapies		Treatment methods that use behavior modification techniques but also incorporate procedures designed to change maladaptive beliefs.
Psychodynamic therapies	Traditional psychoanalysis	Through free association, dream analysis, and transference, attempts to discover the unconscious basis of the client's current problems so as to deal with them in a more rational way.
	Contemporary psychodynamic therapies (e.g., interpersonal therapy)	More structured and short-term than traditional psychoanalysis; emphasize the way the client is currently interacting with others.
Humanistic therapies (e.g., client-centered therapy)		In an atmosphere of empathy, warmth, and genuineness, the therapist attempts to facilitate the process through which the client works out solutions to his or her own problems.
Biological therapies	Psychotherapeutic drugs	Use of drugs to modify mood and behavior.
	Electroconvulsive therapy (ECT)	A mild electric current is applied to the brain to produce a seizure.

possession by evil spirits that needed to be punished, to custodial care in asylums, to modern mental hospitals and community mental health centers.

TECHNIQUES OF PSYCHOTHERAPY

PSYCHOTHERAPY: Psychological interventions aimed at resolving human problems and facilitating effective functioning in society

Types of therapists:

- **Behavior therapists:** Focus on changing behaviors and thought patterns.
- **Psychoanalysts:** Emphasize understanding unconscious motives and conflicts.

Common features:

- A helping relationship between client and therapist.
- Open sharing without judgment.
- Therapist offers empathy, trust, and guidance.

↳ **BEHAVIOR THERAPIES** - Based on **learning and conditioning** principles.

- Assume maladaptive behaviors are **learned** and can be **unlearned**.
- Insight isn't always necessary for behavior change.
- Initial sessions define specific problems and goals.

- Customized treatment plans are created for each client.

Systematic desensitization and in vivo exposure

SYSTEMATIC DESENSITIZATION: method of gradually reducing fearful responses to stimuli and overcoming the maladaptive behaviors that often accompany fear, such as avoidance of feared situations.

- Involves creating an anxiety hierarchy.

IN VIVO EXPOSURE: Real-life exposure to the feared object or situation to weaken the anxiety response.

- Example: Treating spider phobia by progressing from viewing a photo to holding a spider.

Flooding - intense version of in vivo exposure. Direct, prolonged exposure to the most feared object/situation.

- Based on **extinction** of the fear response.
- Effective for phobias, agoraphobia, and OCD.

Selective reinforcement

SELECTIVE REINFORCEMENT: Strengthening desired behaviors by offering rewards or removing negative outcomes.

- Example: Token economy for inattentive children.
- Often paired with extinction of undesired behaviors.
- Used in treating autism, tantrums, poor performance, etc.

MODELING - Learning by observing and imitating others. live or via video

- Effective in reducing fears and teaching new behaviors.
- Example: Watching a therapist handle a spider.

Behavioral rehearsal

BEHAVIORAL REHEARSAL: Also called role-playing, where clients practice new skills or behaviors in a safe setting.

- Often paired with modeling to build confidence.
- Helps with social anxiety and communication skills.

Self-regulation

SELF-REGULATION: The process of monitoring and controlling one's own behavior through strategies like self-monitoring, goal-setting, and self-reinforcement.

- Encourages independence and accountability in behavior change.
- Common in programs that promote long-term habit formation (e.g., quitting smoking, improving study habits).

COGNITIVE-BEHAVIOR THERAPY (CBT): Combines cognitive and behavioral approaches to change distorted thoughts and maladaptive behaviors, recognizing that thoughts, emotions, and actions are interrelated.

Cognitive Component

- Teaches clients to identify and challenge negative thinking patterns (e.g., magnifying failures, minimizing successes).
- Helps reinterpret experiences more realistically (e.g., Beck's method for depression).

Therapeutic Dialogue Example

- Therapist uses guided questioning to expose and correct a client's unrealistic beliefs (e.g., "I can't be happy without Raymond") through **cognitive RESTRUCTURING:** Reorganizing the mental representation of a situation— often an important step in solving a problem.

Behavioral Component

- Encourages clients to test new ways of thinking by acting on them (e.g., mood tracking, behavior experiments).
- Supports cognitive shifts by building real-life mastery.

Application Example: Agoraphobia

- Combines cognitive reframing ("I can cope if I panic") with in vivo exposure to feared places, moving gradually farther from home.

Treatment Program Elements

- **Self-change skills:** Define target behaviors and set goals.
- **Relaxation training:** Learn tension-reduction techniques.
- **Pleasant activities:** Schedule enjoyable events.

- **Cognitive strategies:** Identify and dispute irrational thoughts.
- **Assertiveness training:** Practice clear, confident communication.
- **Social interaction:** Increase positive contact with others.

Effectiveness

- Highly effective for depression, anxiety disorders, eating disorders, substance dependence, sexual dysfunctions, and even some psychotic symptoms.
- Prevents relapse by boosting **SELF-EFFICACY**—the belief in one’s capacity to handle challenges.

› **PSYCHODYNAMIC THERAPIES** Assumes that current problems are rooted in **unconscious conflicts** from early relationships (e.g., with parents or siblings).

- **Goal:** Bring repressed emotions and motives into consciousness to resolve them rationally.

Psychoanalysis, which was developed by Freud Includes:

- **FREE ASSOCIATION:** Clients say whatever comes to mind without filtering. Helps uncover unconscious material. Resistance (blocking) may signal sensitive areas needing exploration.
- **DREAM ANALYSIS:** Explores unconscious meanings of dreams by discussing manifest content and free associating to uncover latent content.
- **TRANSFERENCE:** Clients project feelings from past relationships onto the therapist. Therapists analyze these reactions to reveal emotional patterns. refers to the tendency for the client to make the therapist the object of thoughts and emotions: The client expresses attitudes toward the analyst that are actually felt toward other people who are, or were, important in his or her life.

Contemporary psychodynamic therapies are briefer than traditional psychoanalysis and place more emphasis on the client’s current INTERPERSONAL problems (as opposed to a complete reconstruction of childhood experiences).

› **HUMANISTIC THERAPIES** - Emphasizes a person’s *natural drive for growth and self-actualization*.

- Psychological disorders arise when external influences block personal growth.
- Focus is on the **here and now** experience, not on past events.

CLIENT-CENTERED THERAPY (Carl Rogers)

- Also called **nondirective therapy**.
- Based on the belief that individuals are the best experts on themselves.
- **Therapist’s role:** Facilitate self-understanding, not interpret or direct.
- Uses **reflection** (restating client’s feelings) to aid self-discovery.
- the therapist must have three characteristics in order to promote the client’s growth and self-exploration, Key therapist qualities:
 - **Empathy:** Understanding and communicating the client’s feelings.
 - **Warmth:** Unconditional acceptance of the client.
 - **Genuineness:** Being real and open rather than adopting a professional mask.
- Best suited for **verbal, motivated clients**; less effective for those with severe disturbances.

› **SOCIOCULTURAL APPROACHES TO THERAPY**

- Views individuals as part of a larger social and cultural system.

-Therapy addresses this larger system, not just the individual.

GROUP THERAPY - A form of therapy where a small group (usually 6–8 people) with similar issues meet regularly.

- Helps individuals address emotional and social problems such as isolation, loneliness, and rejection.
- Clients practice new attitudes and social responses within the group setting.
- Therapist’s role varies from background facilitator to active leader (e.g., role-playing, desensitization).

- Offers benefits like mutual support, social skills development, and efficient use of the therapist's time.
- Includes professionally led groups and self-help groups (e.g., Alcoholics Anonymous).

Marital and Family Therapy

Addresses problems in communication, needs, and conflict in intimate and family relationships.

MARITAL THERAPY - Therapy focused on resolving problems within a marriage or intimate partnership.

- Addresses communication issues, unmet needs, and conflicts between partners.
- Most effective when both partners actively participate.
- Helps couples improve communication, clarify expectations, and resolve conflicts to restore harmony.

FAMILY THERAPY - Therapy involving the whole family as a system rather than just individuals.

- Views individual problems as symptoms of family dynamics or dysfunction.
- Therapist observes family interactions and may use tools like videotaping or home visits.
- Aims to change interaction patterns that reinforce problematic behaviors.
- Useful in managing chronic conditions (e.g., schizophrenia) by improving family communication to reduce relapse.

Special Issues in Treating Children

- Therapy must match child's developmental level.
- Families often need treatment alongside the child.
- Motivation can be low as children rarely self-refer.
- Many children in need of therapy do not receive it due to lack of resources.
- Juvenile justice and child welfare systems have many untreated psychological cases.

Effectiveness of Psychotherapy

- Difficult to evaluate due to spontaneous remission and external life changes.

- Treatment effectiveness usually compared to untreated control or placebo groups.

- Outcome measures should include client's, therapist's, and third-party evaluations.

- Research shows psychotherapy is generally more effective than no treatment.

- Average psychotherapy patient improves more than 80% of untreated patients.

Comparing Psychotherapies

- Psychotherapy generally produces better results than no treatment.
- Effectiveness may vary by therapy type and disorder (not detailed in text).

Got it! Here's the same text with **all the terms in ALL CAPS** and with proper **bullets included** for clarity, just like the original style but with bullets clearly shown:

BIOLOGICAL THERAPIES Basic Assumption:

Mental health problems are caused by biochemical or physiological brain dysfunctions, similar to physical illnesses.

Psychotherapeutic Drugs

Most successful biological therapy involves drugs modifying mood and behavior.

- 1950s: Discovery of drugs that relieved schizophrenia symptoms was a major breakthrough.
- Helped reduce need for physical restraints and shortened hospital stays.
- Similar progress with drugs treating severe depression.

Antipsychotic Drugs

- First drugs: **PHENOTHIAZINES** (e.g., chlorpromazine, fluphenazine).
- Called major tranquilizers but don't cause deep sleep or euphoria.
- Block dopamine receptors to reduce symptoms of schizophrenia (hallucinations, confusion).
- Do not cure schizophrenia; ongoing use required to prevent relapse.
- Side effects: dry mouth, blurred vision, concentration problems, and severe neurological disorder called **TARDIVE DYSKINESIA**

(involuntary repetitive movements).

- About 25% of patients do not respond to these drugs.
- Newer **ATYPICAL ANTIPSYCHOTICS** (clozapine, risperidone, aripiprazole, quetiapine, olanzapine) cause fewer side effects and affect dopamine and serotonin receptors.

Antidepressant Drugs

- Elevate mood by regulating norepinephrine and serotonin neurotransmitters.

Types:

- **MONOAMINE OXIDASE (MAO) INHIBITORS:** block enzymes that reduce neurotransmitters; have dietary restrictions (cheese, chocolate, red wine).
- **TRICYCLIC ANTIDEPRESSANTS:** prevent reuptake of neurotransmitters, prolonging their action.
- **SEROTONIN REUPTAKE INHIBITORS** (Selective Serotonin Reuptake Inhibitors): block serotonin reuptake; examples include fluoxetine, paroxetine, sertraline.
- **SNRIs** (Serotonin-Norepinephrine Reuptake Inhibitors): increase serotonin and norepinephrine (e.g., venlafaxine).
- Side effects: dry mouth, blurred vision, constipation, dizziness, nausea, nervousness.
- **LITHIUM** used for bipolar disorder to stabilize mood swings; requires continuous use; side effects include tremors and kidney problems.
- Anticonvulsants also treat bipolar disorder but with different effectiveness and side effects.

Antianxiety Drugs

- Mostly **BENZODIAZEPINES** (e.g., diazepam, chlordiazepoxide, alprazolam).
- Reduce tension and cause drowsiness; depress CNS activity.
- Used for anxiety disorders, withdrawal, and stress-related physical symptoms.
- May be combined with behavioral therapies (e.g., systematic desensitization).

- Some antidepressants also reduce anxiety symptoms.

Stimulants

- Used for ADHD, such as methylphenidate.
- Help reduce hyperactivity and improve attention in 70–85% of cases.
- May work by increasing dopamine levels.
- Other drugs affecting norepinephrine (clonidine, guanfacine, atomoxetine) also used for ADHD.
- Diagnosis must be accurate before drug prescription.

ELECTROCONVULSIVE THERAPY (ECT)

- Electric current is applied to the brain to induce controlled seizures.
- Used mainly for severe depression unresponsive to drugs.
- Earlier use was less safe, causing confusion, memory loss, and physical injuries.
- Modern **ECT** involves anesthesia and muscle relaxants, minimizing side effects.
- Usual treatment: 4–6 sessions over weeks.
- Common side effect: temporary memory loss, especially for events months before treatment.

Memory loss is minimized by using low current and targeting the nondominant brain hemisphere.\

Lesson 17 SOCIAL INFLUENCE

SOCIAL PSYCHOLOGY - study of how people think and feel about their social world and how they interact and influence one another. It is that situational forces have tremendous power to shape human behavior.

A related lesson within social psychology is Fundamental Attribution Error

FUNDAMENTAL ATTRIBUTION ERROR. - tendency to mistakenly explain other people's behavior by referring to their personality or character, while ignoring the powerful situational forces that actually influence their actions.

- This error occurs because *situational forces* are often invisible to us.

The Presence of Others

Social facilitation and social inhibition

↳ **SOCIAL FACILITATION** - The improvement in an individual's performance on simple or well-learned tasks when in the presence of others, whether those others are performing the same task (coaction) or simply watching (an audience). This happens because the presence of others narrows a person's attention and increases arousal.

COACTION - A situation where individuals perform the same task simultaneously, which can lead to social facilitation effects.

↳ **SOCIAL INHIBITION.** - The worsening of performance on complex or new tasks when others are present, often because the task requires accuracy or controlled processing that can be disrupted by increased arousal or evaluation concerns.

The Stroop task (MacLeod, 1991; Stroop, 1935) is a complex, poorly learned task that involves only a few key stimuli.

STROOP INTERFERENCE A phenomenon where people take longer to name the ink color of a word when the word itself spells out a different color (e.g., the word "red" printed in yellow ink). This occurs because reading the word is an automatic response that conflicts with the task of naming the ink color.

Dominant-Response View theory that the presence of others *enhances* the likelihood of performing an automatic or dominant response, which helps on simple tasks but hinders on complex tasks, causing social facilitation or social inhibition.

Attention View theory that the presence of others *narrows* attention, which can reduce distractions and improve

performance on certain complex tasks by focusing on relevant information.

Application in Stroop Task

Studies show that people perform better on the Stroop task when others are present, supporting the attention view that social presence can improve performance by narrowing focus and reducing interference from irrelevant information.

Deindividuation

The uninhibited aggressive behavior sometimes shown by mobs and crowds may be the result of a state of deindividuation

DEINDIVIDUATION - A psychological state in which individuals lose their sense of personal identity and feel merged with a group, often leading to uninhibited and sometimes aggressive behavior. This state is influenced by factors like anonymity and group size.

SOCIAL NORMS - The unwritten rules and expectations about behavior that are specific to a group or situation. In the context of deindividuation, people become more sensitive to these norms, which can either increase or decrease aggression depending on the group's prevailing attitudes.

Bystander effects

BYSTANDER EFFECT - tendency for individuals to be less likely to intervene or help in an emergency when they are in a group compared to when they are alone.

- Two major factors that deter intervention are defining the situation and *diffusion of responsibility*.

DIFFUSION OF RESPONSIBILITY - the presence of others reduces each person's feeling of personal responsibility to take action during an emergency.

- . The presence of other people also diffuses responsibility so that no one person feels the necessity to act.

Bystanders are more likely to intervene when these factors are minimized, particularly if at least one person begins to help.

PLURALISTIC IGNORANCE - A state in which bystanders, trying to appear calm, interpret the situation as a nonemergency because no one else is acting, leading to collective inaction.

Compliance and Obedience

Conformity to a majority

- Solomon Asch's studies showed that a unanimous group creates strong pressure for individuals to conform, even when the group is clearly wrong. If even one person dissents, conformity drops significantly.

CONFORMITY - The act of matching one's attitudes, beliefs, and behaviors to group norms or the judgments of a majority.

COMPLIANCE - Going along with the wishes or requests of an influencer or group without necessarily changing one's own beliefs or attitudes.

Minority influence

MINORITY INFLUENCE - The power of a smaller group within a larger majority to shift the majority's views by maintaining a consistent but flexible dissenting position. Minority influence can lead to private attitude changes even if public conformity doesn't occur. Minorities are more effective when their position aligns with emerging social norms and when they avoid appearing rigid or arrogant.

IMPLICIT LENIENCY CONTRACT - A social dynamic where majority members allow minority members to express their opinions to appear fair and open-minded, which ironically increases the likelihood of minority influence by encouraging thoughtful consideration and eventual attitude change.

. To understand obedience in a particular situation, then, we need to understand the individual's acceptance of an *ideology*

IDEOLOGY - A set of beliefs and attitudes that justify and legitimize the authority of a person or system, influencing obedience and acceptance of directive

Obedience to authority

- Following orders or commands from someone perceived as an authority figure, even when those orders conflict with personal morals.

- Stanley Milgram's classic experiments showed that ordinary people would obey instructions to deliver what they believed were painful electric shocks to others.

Factors that increase obedience include:

- **Surveillance:** Obedience drops when the authority figure is absent.
- **Buffers:** Obedience decreases when the person is physically/emotionally close to the victim.

- **Diffusion of Responsibility:** Obedience rises when one's role is limited (e.g., flipping a switch while another delivers the shock).
- **Role Models:** Seeing others disobey lowers obedience.

Historical examples:

- Nazi Germany's atrocities partly explained by obedience; Adolf Eichmann viewed as "just following orders."
- Hannah Arendt coined the **BANALITY OF EVIL**, meaning ordinary people can commit evil acts under authority.
- The My Lai Massacre (Vietnam, 1968) highlighted obedience overriding personal morality.

Modern research suggests group identity and situational factors heavily influence obedience.

Ethical concerns in Milgram's study:

- Participants showed signs of extreme stress.
- Deception may harm trust in psychology and authority.
- Modern ethics require informed consent and minimal risk; Milgram's study likely would not pass today.

Milgram's follow-up found most participants felt positive about their experience after *debriefing*

DEBRIEFING - The process after an experiment where participants are informed about the true nature of the study, reasons for deception, and reassured to reduce potential harm.

Internalization

Self-justification

Most studies of conformity and obedience focus on whether people comply with *social influence* in the moment. But in real life, influencers often aim for internalization—changing our private attitudes for lasting impact, not just temporary behavior

INTERNALIZATION - The process of adopting attitudes, beliefs, or values as one's own, leading to lasting change even when external influences are gone

- Social influencers often aim for internalization, not just outward compliance, to ensure long-term attitude or behavior change.

COGNITIVE DISSONANCE THEORY - The theory that people feel psychological discomfort (dissonance) when their behavior conflicts with their attitudes, prompting them

to change their attitudes to reduce the discomfort.

- Example: A smoker who knows smoking is harmful might change their attitude to justify continuing ("It helps me relax").

SELF-PERCEPTION THEORY - A theory that challenges cognitive dissonance by suggesting people infer their attitudes from their behavior, especially when internal cues are weak or unclear, without necessarily feeling inner conflict.

Example: If someone notices they volunteer often, they might conclude they care deeply about helping others

A key point in *cognitive dissonance theory* is that when actions and attitudes clash, we feel discomfort (dissonance) and try to reduce it—usually by changing our attitudes, since past behavior can't be undone. Admitting a poor decision can create more dissonance, so we justify it instead, a process called *rationalization*. For example, a smoker might say, "I know it's unhealthy, but it helps me relax," or a Milgram participant might say, "At least I followed orders."

RATIONALIZATION process of self-justification where one creates logical-sounding reasons to explain behaviors or attitudes, especially when they conflict with one's self-image.

Example: "I followed orders, so I'm not responsible," or "Smoking calms me, so it's worth the risk."

Sometimes the reverse happens: people overvalue the situation and undervalue personal motives. As seen in the pizza-reward example, kids may read more for pizza, but not for enjoyment. *Self-perception theory* explains this: when behavior is seen as reward-driven, personal motivation is downplayed. This is the *overjustification effect*—where external rewards overshadow genuine interest, and once rewards disappear, so does the motivation.

OVERJUSTIFICATION EFFECT When people attribute their behavior more to external rewards than to intrinsic motivation, causing a drop in internal interest.

Example: Children rewarded with pizza for reading may stop reading once the reward ends, thinking they read only for the pizza.

FOOT-IN-THE-DOOR TECHNIQUE A social influence tool where someone first asks for a small request, increasing the likelihood of agreement to a larger request later.

Example: Asking a neighbor to sign a petition (small request) before later asking them to volunteer (larger request).

Reference groups and identification

In the process of **IDENTIFICATION**, we adopt the beliefs, norms, and behaviors of groups we admire.

This means we shape our behavior based on groups we respect.

REFERENCE GROUPS are the groups we use to evaluate our actions and opinions.

They guide our behavior by rewarding or punishing us socially, or by giving us a framework for understanding *social norms* (shared rules for acceptable behavior).

SOCIAL NORMS. Implicit rules and expectations that dictate what we ought to think and how we ought to behave. social phobia Extreme insecurity in social situation Most people have more than one *reference group*, which can create conflicting pressures.

- For example, college students may shift from their family's values to those of their university group.
- These new beliefs are often maintained because they become *internalized* (accepted as personally meaningful) and because people later seek out groups with similar views.

Group Interactions

Institutional norms

- **INSTITUTIONAL NORMS** are like *social norms* but apply to entire organizations (e.g., schools, prisons, businesses).

They define what behavior is acceptable within those institutions

Group decision making

When groups make decisions, they often display *group polarization effect*:

The **GROUP POLARIZATION EFFECT** happens when group discussions lead to more extreme decisions than the average of individual opinions.

This occurs due to:

- **INFORMATIONAL SOCIAL INFLUENCE:** learning new information and arguments from group members.

- **NORMATIVE SOCIAL INFLUENCE:** shifting opinions to match the perceived group norm.

GROUPTHINK is when members of a cohesive group suppress their own doubts to maintain group harmony and agreement.

- It's less about group closeness and more about pressure to keep a positive group image and reach consensus.

Lesson 18: Social Cognition

Impression Formation

Impression formation is how we quickly and often unconsciously judge others based on factors like ethnicity, age, gender, and our own motives.

SOCIAL COGNITION is the study of people's subjective interpretations of their social experiences, as well as their modes of thinking about the social world.

Two different modes of thinking have been found to be critical within social cognition:

- one more automatic and unintentional, often outside conscious awareness,
- and another more controlled and deliberate, of which we are fully aware.

Stereotypes

- A set of inferences about the personality traits or physical attributes of a whole class of people; schemas of classes of people.

If we can understand why, when, and how stereotypes operate, social psychologists argue, we can be better prepared to limit their adverse effects and treat people more fairly.

SCHEMATIC PROCESSING is the perceiving and interpreting of incoming information in terms of simplified memory structures called *schemas*.

SCHEMAS are mini-theories about everyday objects and events. They allow us to process social information efficiently by permitting us to encode and remember only the unique or most prominent features of a new object or event.

STEREOTYPES are *schemas* about groups of people. Through repeated exposure, stereotypes can become habitual and automatic, operating outside conscious awareness.

Because *schemas* and stereotypes simplify reality, **SCHEMATIC PROCESSING** produces biases and errors in our processing of social information.

SELF-SCHEMA or schema about ourselves— a set of organized self-concepts stored in memory (Markus, 1977).

- When you see a job advertisement for a peer counselor, for instance, you can evaluate the match between your counselor schema and your self-schema to decide whether you should apply for the job.

Automatic stereotype activation

PRIMING can also influence social behavior: Simply exposing people to words like adhere, comply, and conform increased the likelihood that they would later conform to a unanimous majority.

- Priming can also activate stereotypes automatically, outside conscious awareness.

Stereotypes and information processing

In forming impressions of other people, for example, we are prone to the *primacy effect*

PRIMACY EFFECT: The first information we receive evokes an initial *schema*

and, hence, becomes more powerful in determining our impression than does later information. Schemas and stereotypes also govern our *inferences*

INFERENCE: to make judgments that go beyond the information given.

Self-fulfilling stereotypes

Stereotypes can also be like omens— they can predict the future. But this is not because stereotypes are necessarily true. Rather,

Once activated, stereotypes can set in motion a chain of behavioral processes that serve to draw out from others behavior that confirms the initial stereotype, an effect called the **SELF-FULFILLING PROPHECY**. This behavioral sequence can occur completely outside conscious awareness.

- This works because stereotypes don't just reside in our heads. They leak out in our actions.

stereotypes about the self can be self-fulfilling as well.

STEREOTYPE THREAT refers to how the mere threat of being identified with a *stereotype* can raise a person's anxiety level, reduce working memory capacity, and thereby degrade performance.

Individuation

If the effects of stereotypes are so automatic and far-reaching, can we ever truly come to know another person accurately?

INDIVIDUATION is the process of forming impressions of others by assessing their personal qualities on a person-by-person basis.

Triggers of individuation

The **CONTINUUM MODEL** of impression formation details when and how people come to *individuate* others. Cooperative activities can promote *individuation*.

Although *stereotypes* are activated automatically, under the right conditions they can also be controlled through effortful thinking.

Attributions

ATTRIBUTION is the process by which we attempt to interpret and explain the behavior of other people—that is, to discern the causes of their actions.

The fundamental attribution error revisited

One major *attribution* task is to decide whether someone's action should be attributed to :

DISPOSITIONAL ATTRIBUTION (the person's personality or attitudes) or to

SITUATIONAL ATTRIBUTION (social forces or other external circumstances). We tend to give too much weight to *dispositional factors* and too little to *situational factors*.

This bias has been called the *fundamental attribution error*.

FUNDAMENTAL ATTRIBUTION ERROR occurs when we underestimate the situational influences on behavior and assume that some personal characteristic of the individual is responsible

Ancient cultural practices and beliefs about the locus of causality are believed to have shaped contemporary **cultural differences in styles of thinking**.

- Research has shown repeatedly that **East Asians** think more *holistically*,

HOLISTIC THOUGHT An orientation toward the entire context or field and assigning causality to it, making relatively little use of categories and formal logic, and relying instead on dialectical reasoning, which involves recognizing and transcending apparent contradictions.

- whereas **Westerners** think *analytically*.

ANALYTIC THOUGHT An orientation toward objects, detached from their contexts, with much use of categories and formal logic and the avoidance of contradiction.

This work challenges all claims to universality made about human cognition, both basic and social.

Attitudes

ATTITUDES are likes and dislikes—favorable or unfavorable evaluations of and reactions to objects, people, events, or ideas. *attitudes* have a cognitive component, an affective component, and a behavioral component.

Persuasive communication

The **ELABORATION LIKELIHOOD MODEL** states that persuasion can take two routes in producing belief and *attitude* change:

- **CENTRAL ROUTE**, in which the individual responds to the substantive arguments of a communication, and
- **PERIPHERAL ROUTE**, in which the individual responds to non-content cues in a communication (such as the number of arguments) or to context cues (such as the credibility of the communicator or the pleasantness of the surroundings)

- A communication about an issue of personal relevance is more likely to generate thoughts in response to the communication's substantive arguments.

- When an issue is of little personal relevance or people are unwilling or unable to respond to the substantive content of a communication, they tend to use simple heuristics—rules of thumb—to judge the merits of the communication.

- This may include *Counterarguing* or *attitude bolstering* depending on the response.

COUNTERARGUING or directly rebutting the message arguments is indeed the most effective strategy for resisting persuasion.

ATTITUDE BOLSTERING, defined as generating thoughts to support your original attitude without directly refuting message arguments, is not an effective resistance strategy. another common response to persuasive attempt

Attitudes and behavior

Attitudes tend to predict behavior best when they are

- (1) strong and consistent,
- (2) specifically related to the behavior being predicted, and
- (3) based on the person's direct experience, as well as]
- (4) when the individual is aware of his or her *attitudes*.

Interpersonal Attraction

Liking and attraction

Many factors influence whether we will be attracted to a particular individual. The most important are physical attractiveness, **PROXIMITY**, familiarity (including the **MERE EXPOSURE EFFECT**), similarity, and **TRANSFERENCE**.

FIVE FACTORS THAT INFLUENCE ATTRACTION

1. Physical Attractiveness

Although people claim that physical appearance isn't very important in relationships, studies show otherwise—physical attractiveness heavily influences how much someone is liked, especially during first impressions.

In experiments like the “computer dance,” attractiveness was the strongest factor in determining liking, outweighing personality or intelligence.

This preference for attractive individuals also extends to dating, marriages, and even social perception—people are seen more positively when accompanied by attractive companions.

However, people may feel worse about themselves when compared to someone more attractive nearby.

Fortunately, attractiveness becomes less important when choosing long-term partners.

2. Proximity - how far apart they live.

Physical closeness increases the likelihood of forming friendships or romantic relationships. People tend to become friends or couples with those who live or work near them.

Studies show that neighbors and roommates are far more likely to become friends than those living farther apart.

Proximity intensifies our feelings—pleasant people become more likable when nearby, while unpleasant people become more unlikable.

3. Familiarity (Mere Exposure Effect)

One of the major reasons that proximity creates liking is that it increases familiarity, and there is now abundant evidence for what is called the

MERE EXPOSURE EFFECT the finding that familiarity all by itself increases liking

The more often we see someone or something, the more we tend to like it—even if we don't consciously notice the exposure.

This has been shown with images, nonsense syllables, music, and even human faces.

4. Similarity

Despite the saying “opposites attract,” research consistently shows that people are more likely to be attracted to those who are similar to them.

Long-term couples tend to share similarities in race, religion, education, age, intelligence, values, and even physical attractiveness.

People tend to choose partners whose level of attractiveness is close to their own—a phenomenon called “**matching**.”

IMPLICIT EGOTISM the non-conscious tendency to be attracted to people, places and objects that subtly remind one of oneself.

5. Transference

Transference is when people unconsciously transfer feelings and expectations from a significant person in their life (like a parent or partner) onto someone new—like a therapist or stranger.

Social cognitive research shows that when we meet someone who reminds us of someone important from our past, we tend to **see and treat them similarly** to that person.

This happens because the new person **activates schemas** (stored mental knowledge) related to the significant other.

- be cautious when someone approaches you and says, ‘You remind me of someone.’

Loving and mating

SELF-EXPANSION Theorists have suggested that one reason people fall in love is that doing so expands the self

- or increase our potential abilities and resources—in multiple ways.
-

As we become close to another person, we gain access to that person's resources, perspectives, and identities— this might include someone's circle of friends, cooking skills, views on politics or religion, or popularity more generally— each of which can help us to achieve our own goals

Passionate and companionate love

There have been several attempts to classify types of love. **PASSIONATE LOVE** is characterized by intense and often conflicting emotions, whereas

COMPANIONATE LOVE is characterized by trust, caring, tolerance of the partner's flaws, and an emotional tone of warmth and affection.

Even though *Passionate Love* decreases over time in long-term relationships, the potential for strong emotion actually increases. But because *Companionate* couples become so compatible in their daily routines, the actual frequency of strong emotions is fairly low.

Another classification of love divides it into the components of the **TRIANGULAR THEORY OF LOVE: Intimacy, Passion, and Commitment.**

Intimacy is the emotional component and involves closeness and sharing of feelings.

Passion, the motivational component, consists of sexual attraction and the romantic feeling of being 'in love'

Commitment is the cognitive component; it reflects the intention to remain in the relationship.

Combining these three components in different ways yields the eight kinds of relationships shown below

	<i>Intimacy</i>	<i>Passion</i>	<i>Commitment</i>
Nonlove	Low	Low	Low
Liking	High	Low	Low
Infatuated love	Low	High	Low
Romantic love	High	High	Low
Empty love	Low	Low	High
Companionate love	High	Low	High
Fatuous love	Low	High	High
Consummate love	High	High	High

Evolutionary Psychology suggests that humans have evolved to form long-term bonds with a partner because historically such pair bonds operated to ensure the survival of offspring to reproductive age.

A more controversial hypothesis from Evolutionary Psychology is that men and women have evolved to pursue different mating strategies, with men evolving to be more promiscuous and seek out younger women.

GOODLUCK PSYCHMATES !!! <3 - angge