PSYCHOLOGY

INTRODUCTION

Psychology is the scientific study of thought and behavior. Psychologists study how the brain creates thoughts, feelings, and actions, and how internal and external environments affect them.

APPROACHES TO PSYCHOLOGY

A. **Biological:** Focuses on the relationship between the body and the mind
B. **Behavioral:** Concerned mainly with a person's observable responses to stimuli
C. **Cognitive:** Concerned with memory, perception, thought, and other mental processes
D. **Humanistic:** Focuses on a person's capacity for self-fulfillment and growth
E. **Psychodynamic:** Concerned with the influence of unconscious desires and motives

RESEARCH STUDIES

A. Studies test **hypotheses** (testable explanations of observed events).
B. Studies must have **reliability** and **validity**.
   1. **Reliability:** The study produces consistent results when replicated
   2. **Validity:** The study accurately measures what it claims to measure. There are three types of validity:
      a. **Construct:** The study measures the effect that it is trying to measure
      b. **Internal:** The study shows that only the experimental factor caused an effect
      c. **External:** The study results apply to other situations

TYPES OF STUDIES

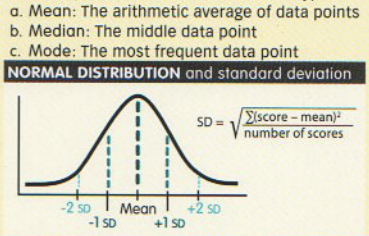
A. **Correlational study:** Expresses the relationship between two variables; does not imply causation
B. **Experiment:** Manipulation of an independent variable in order to understand its effect on a dependent variable. Identifies cause-and-effect relationships.
   1. **Sampling:** The process of choosing subjects to study
      a. **Sample:** A group of subjects selected for study; a subset of a population
      b. **Population:** A group of people about whom the researcher wants to make conclusions. A sample should be representative of the population.
   2. **Random assignment:** Random placement of subjects into experimental or control groups
      a. **Control group:** A group not subject to experimental manipulation
   3. **Variables:** Things that can vary among subjects
      a. **Independent variable:** Manipulated by researcher; produces a change in dependent variable
      b. **Dependent variable:** Measured by the researcher
      c. **Confounding variable:** Any possible variable (other than the independent variable) that may cause the observed effect

STATISTICS

Statistical analysis describes data and quantifies relationships between variables.

A. **Frequency distribution:** An arrangement of data points based on how frequently they occur
   1. **Normal distribution:** A frequency distribution with a symmetrical bell-shaped curve
   2. **Central tendency:** Measures of the center of the frequency distribution. There are three types.
      a. Mean: The arithmetic average of data points
      b. Median: The middle data point
      c. Mode: The most frequent data point

NORMAL DISTRIBUTION and standard deviation



   3. **Variability:** How the data are dispersed or spread around the mean
      a. **Range:** The distance between the highest and lowest data point
      b. **Standard deviation (SD):** The average distance of a data point from the mean. A small SD means the scores are relatively close to the mean score; a large SD means the scores have a wider range around the mean.
B. **Statistical significance:** Means that the differences observed are too big to have occurred by chance
   1. **Two types of errors** occur in significance testing:
      a. **Type I error:** False negative; fails to perceive an effect that *is* there
      b. **Type II error:** False positive; perceives an effect that is *not* there

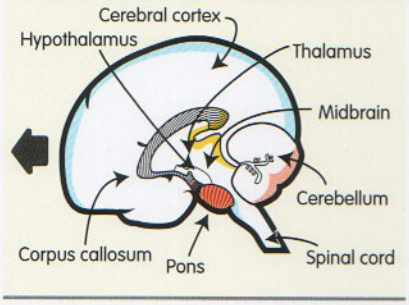
NEUROPSYCHOLOGY

THE NERVOUS SYSTEM

The **nervous system** receives and transmits information.

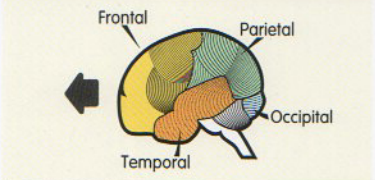
A. **Central nervous system (CNS):** Consists of the brain and spinal cord. The brain is split into right and left **hemispheres**, which exhibit **contralateral** control (each hemisphere controls opposite side of body) and **lateralization** (left and right hemispheres have different functions). The three major parts of the brain are the **hindbrain**, **midbrain**, and **forebrain**.
   1. **Hindbrain:** The top part of the spinal cord; includes the medulla, pons, and cerebellum
      a. **Medulla:** Controls basic biological functions, such as breathing, swallowing, and balance
      b. **Pons:** Controls facial expressions, sleep, and dreaming
      c. **Cerebellum:** Controls fine motor movements
   2. **Midbrain:** Coordinates basic movements with sensory information

THE INTERIOR OF THE BRAIN



   3. **Forebrain:** Large in humans; includes the cerebral cortex and subcortical structures such as the thalamus, hypothalamus, and basal ganglia
      a. **Basal ganglia:** Regulates muscle contractions/movements
      b. **Thalamus:** Incorporates and relays sensory information to the cortex
      c. **Hypothalamus:** Controls motivated behavior, such as eating, drinking, and sex
      d. **Hippocampus:** Helps process and receive long-term and spatial memory
      e. **Amygdala:** Controls emotion and evaluation of stimuli
      f. **Cerebral cortex:** Receives sensory information and transmits motor information. The **corpus callosum** is a nerve tract beneath the cortex that connects the two hemispheres and allows them to communicate. The cerebral cortex consists of four lobes:
         - **Occipital lobe:** Processes vision
         - **Temporal lobe:** Processes sound
         - **Parietal lobe:** Integrates sensory systems; is involved in attention
         - **Frontal lobe:** Controls speech, learning, thinking, decision-making, and abstract thought

THE SURFACE OF THE BRAIN and the cerebral lobes



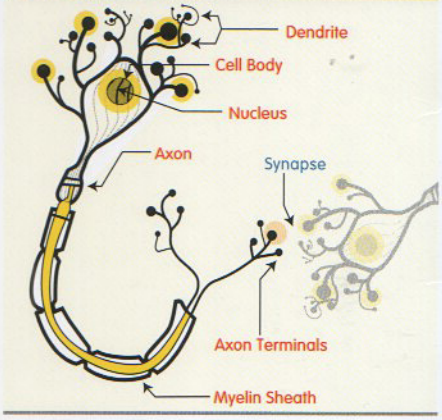
B. **Peripheral nervous system:** Includes all nerves that spread through the body from the brain and spinal cord. The peripheral nervous system has two divisions:
   1. **Somatic division:** Controls voluntary muscle movements and sense organs
   2. **Autonomic division:** Controls involuntary actions and the internal organs; divided into two parts:
      a. **Sympathetic nervous system:** Gets the body ready for emergency action
      b. **Parasympathetic nervous system:** Becomes active during states of relaxation

NEURONS

Neurons, or nerve cells, are the basic unit of the nervous system. Each neuron has three main parts.

A. **Soma:** Cell body; stores energy for the cell
B. **Dendrite:** Receives messages from other neurons and conducts the messages toward the soma
C. **Axon:** Sends messages to other neurons
   1. **Terminal branches (axon terminals):** The end of the axon that contains neurotransmitters
   2. **Myelin sheath:** Insulates axons so signals can travel quickly
      a. **Glial cell:** Creates myelin, supports and guides neurons, and helps repair neurons

THE NEURON and synapse



INFORMATION EXCHANGE

Neurons communicate by receiving and transmitting **nerve impulses**.

A. The axon terminals of the presynaptic neuron are stimulated. The terminals contain **synaptic vesicles**, which empty **neurotransmitters** into the **synapse** between the neurons. Neurotransmitters activate the postsynaptic neuron, changing its voltage. Once the **excitation threshold** is reached, the **action potential** begins, and a neuron fires.
   1. **Synapse:** The small gap between neurons where information is exchanged
   2. **Synaptic vesicles:** Places where neurotransmitters are stored until release into the synapse
   3. **Neurotransmitters:** Chemicals that stimulate neurons so they can communicate
      a. **Excitatory:** Make neurons more likely to fire
      b. **Inhibitory:** Make neurons less likely to fire
   4. **Excitation threshold:** The voltage difference (–55 millivolts) necessary to destabilize a neuron, causing an action potential to occur
   5. **Action potential (nerve impulse):** The brief change in electrical charge that destabilizes a neuron. The action potential stimulates the axon terminals, restarting the process.

ENDOCRINE SYSTEM

The **endocrine system**, made up of hormone-secreting glands, affects communication inside the body.

A. **Hormones** are chemicals that help regulate bodily functions.
B. Glands produce hormones and dump them into the bloodstream, through which the hormones travel through the body.
C. Hormones act more slowly than neurotransmitters, but their effects tend to be longer-lasting.

SENSATION

PARTS OF THE EYE

A. **Cornea:** Protective covering where light first enters the eye
B. **Lens:** Bends (refracts) light rays; focuses a flipped, inverted image onto the retina
C. **Retina:** A thin structure at back of eye that contains two types of receptor cells
   1. **Rods:** Cells in the periphery of the retina that respond to black and white. Rods are better in low light, more sensitive to motion, and have less visual acuity than cones.
   2. **Cones:** centered in the fovea (middle of the retina). Respond to color, good for daytime vision, more visual acuity
D. **Optic nerve:** Carries visual information to the lateral geniculate nucleus of the **thalamus**
   1. **Blind spot:** A place where the optic nerve exits the eye; has no receptor cells, so no vision

VISION

A. **Light waves:** Electromagnetic waves that stimulate receptors in the eye
   1. **Intensity:** Amount of energy per unit of time (brightness)
   2. **Wavelength:** Distance between two wave crests (color)
B. **Two theories of color vision:**
   1. **Trichromatic theory (Young-Helmholtz):** Three types of cones detect three wavelengths of light (**blue**, **green**, **red**). This theory does not explain negative afterimages.
      a. **Negative afterimage:** If you stare at one color and then look at white space, you see a color afterimage in the complementary hue of the original stimulus
   2. **Opponent-process theory (Hering):** Receptor cells are arranged in pairs: **red/green**, **blue/yellow**, and **black/white**. If one color is stimulated, the other is inhibited.

PSYCHOLOGY

PARTS OF THE EAR

A. **Outer ear (pinna):** Collects sound from air and directs it through the ear canal
B. **Tympanic membrane (eardrum):** A membrane that vibrates when sound hits it
C. **Oval window:** A membrane that separates middle ear from inner ear; sends vibrations to the cochlea
D. **Cochlea:** A fluid-filled membrane in the inner ear; its pressure changes stimulate hair cells
E. **Hair cells:** Auditory receptor cells that initiate nerve impulses

AUDITION (THE SENSE OF HEARING)

A. **Sound wave:** Vibrations (changes in air pressure) that stimulate auditory receptors
   1. **Amplitude:** The height of a wave (loudness); i.e., the pressure exerted by each air particle.
   2. **Frequency:** The length of a wave (pitch); i.e. the time between two points of maximum amplitude.
      a. **Place theory:** Hair cells respond to different frequencies of sound based on their location in the cochlea
      b. **Frequency theory:** Hair cells fire at different rates (frequencies) in the cochlea, allowing us to sense pitch

CHEMICAL SENSES

A. **Smell (olfaction):** Information gathered from chemicals in the air. Inhaled molecules excite receptors in the **olfactory epithelium**. The **olfactory bulb** gathers messages from the **olfactory receptor cells** and sends them to the brain.
B. **Taste:** Sensory receptors in taste buds of tongue sensitive to salty, sour, bitter, and sweet

MECHANICAL SENSES

A. **Skin senses:** Information from the skin, including pressure, pain, warmth, and cold
B. **Vestibular senses:** Receptors in semicircular canal of inner ear sense how our body is oriented, maintains balance, and locates our head in space
C. **Kinesthetic sense:** Receptors in muscles, tendons, joints give information about our limbs

PERCEPTION

Perception refers to understanding and interpreting sensations from a stimulus.

MEASURING PERCEPTION

A. **Absolute threshold:** The least amount of stimulus that is observable
B. **Difference threshold:** The smallest amount a stimulus must change so that an observer can perceive a **just noticeable difference (jnd)**
C. **Weber's law:** The size of the difference threshold is proportional to the stimulus's intensity

PERCEPTUAL CUES

A. **Perceptual constancy:** We see qualities of an object as constant (size, shape, brightness)
B. **Visual depth perception:** The perception of cues that indicate the distance of an object
   1. **Monocular cues:** Cues that do not use two eyes
      a. **Interposition:** Objects in front are closer
      b. **Size:** Larger objects are closer
      c. **Linear perspective:** Objects produce smaller retinal image as they are farther away
      d. **Texture gradients:** Detail of texture is greater if the surface is closer
   2. **Binocular cues:** Cues that use two eyes
      a. **Binocular or retinal disparity:** The difference between the two eyes' views. Binocular disparity increases the farther the object is from the observer.
   3. **Motion cues**
      a. **Motion parallax:** As you move your head, images of close things change position more quickly on the retina than images of distant ones
C. **Gestalt rules:** Laws that the brain uses to group or organize elements of a scene
   1. **Proximity:** Objects near each other belong together
   2. **Similarity:** Objects that resemble each other belong together
   3. **Continuity:** Objects that form a continuous line belong together
   4. **Closure:** Objects that make up something we recognize belong together
   5. **Common fate:** Objects moving in the same direction belong together

TYPES OF PROCESSING

Processing refers to the way in which we recognize and organize stimuli.
A. **Bottom-up (feature analysis):** starts with the smaller, specific elements of a scene and uses them to create the larger units or context
B. **Top-down:** starts with a larger context or units to recognize smaller, specific elements of the scene; uses **schemata** (mental representations of our expectations of the world)

ATTENTION

Attention is the process of perceiving some information and not other information.
A. **Cocktail party effect:** A person suddenly switches attention if his or her name is said
B. **Stroop effect:** Automatic processes can interfere with other tasks; hard to name the color of a word colored differently because reading process is more automatic (e.g., GREEN/RED)

LEARNING

Learning refers to changes in behavior that arise due to experience.

TWO TYPES OF SIMPLE LEARNING

A. **Habituation:** Tendency to respond to stimuli lessens as the stimuli become more familiar
B. **Classical conditioning (Pavlov):** creation of involuntary responses to stimuli
   1. **Elements of classical conditioning**
      a. **Unconditioned stimulus (UCS):** From the environment; triggers natural response
      b. **Unconditioned response (UCR):** Natural reaction to UCS
      c. **Conditioned stimulus (CS):** Paired with UCS; before pairing, the CS does not produce a response; after pairing, it does
      d. **Conditioned response (CR):** A response to a CS; the CR is often the same as the UCR, but it is a learned response
   2. **Pavlov's experiment**
      - CS (bell) ➡ no response
      - UCS (food) ➡ UCR (salivation to food)
      - UCS (food) + CS (bell) ➡ UCR (salivation to food)
      - CS (bell) ➡ CR (salivation to bell)
   3. **Principles of classical conditioning**
      a. **Extinction:** When the CS appears without UCS, the CR eventually disappears
      b. **Spontaneous recovery:** After extinction, the CS reappears and elicits CR
      c. **Generalization:** CR occurs to stimuli that are similar to CS
      d. **Discrimination:** CR only occurs to CS that was previously paired with UCS

OPERANT/INSTRUMENTAL CONDITIONING (SKINNER)

A. **Operant conditioning:** Learning based on the association of consequences to one's behavior. A **reinforcer** is given only if there is an **operant** response.
   1. **Operant:** An instrumental response (a rat pressing a lever)
   2. **Reinforcer (reward):** Something that increases the likelihood of a behavior (e.g., food).
      a. **Positive reinforcement:** If desired behavior occurs, add something pleasant
      b. **Negative reinforcement:** If desired behavior occurs, take away something unpleasant
   3. **Punisher:** Something that decreases the likelihood of a behavior (e.g., shock)
      a. **Learned helplessness:** Occurs when a subject believes that unpleasant or painful stimuli are inevitable and gives up trying to change the circumstances
B. **Principles of operant conditioning**
   1. **Shaping:** Reinforcing successive steps to reach a desired behavior
   2. **Chaining:** Reinforcing a series of behaviors to get a reward
   3. **Extinction:** Occurs if behavioral response is no longer reinforced
C. **Schedule of reinforcement:** Pattern of reinforcing behavioral responses. Two main types:
   1. **Continuous reinforcement:** Reinforcement after every correct response
   2. **Partial reinforcement:** Reinforcement after some correct responses. Four main types:
      a. **Fixed:** Reinforcement is given a fixed amount of time after a correct response (response starts low, increases rapidly)
      b. **Variable:** Reinforcement is given an average amount of time after a correct response (low rates of response)
      c. **Fixed-ratio schedules:** Reinforcement is given after a fixed number of correct responses (high rates of response)
      d. **Variable-ratio schedules:** Reinforcement is given after an average number of correct responses (very high rates of response)

MEMORY

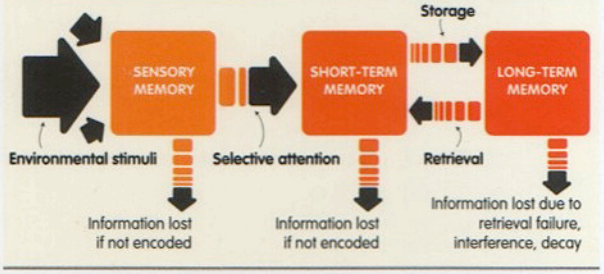
MEMORY

Memory refers to the way we record events, information, and skills.
A. **Encoding:** Acquiring information from the world and storing it in memory
   1. **Levels of processing** (Craik and Lockhart): Two types of encoding strategies
      a. **Shallow:** Encoding for surface features (less successful)
      b. **Deep:** Encoding for structural relationships and meaning (more successful)
B. **Storage:** Holding on to information for later use
C. **Retrieval:** Getting information back when it is needed. Two ways to retrieve information:
   1. **Recall:** Supplying information in response to a cue or question
   2 **Recognition:** Deciding whether information was encountered before

THREE MEMORY SYSTEMS

A. **Sensory memory:** where information first enters memory system. Large capacity, short duration (split seconds); some of it is encoded or stored in the STM.
B. **Short-term memory (STM) or working memory:** Where we use and are aware of memories
   1. Small capacity (7±2 items)
      a. **Chunking:** STM capacity increases by recoding information into larger, meaningful units
   2. Short duration (30 seconds)
      a. **Rehearsal:** STM duration increases through repetition of information
C. **Long-term memory (LTM):** Relatively permanent store of information, unlimited capacity, and long duration. One can transfer memories from STM to LTM by **rehearsal**.
   1. **Implicit:** Memory for skills and motor patterns
   2. **Explicit:** Memory for facts, events, and meanings
   3. **Semantic:** Memory for general meanings and information
   4. **Episodic:** Memory of specific personal events

THE MEMORY MODEL: the way we process and retrieve information



FORGETTING

A. **Decay:** Memory becomes eroded because we have not used it for a while
B. **Displacement:** Items are pushed out of memory by other items; applies only to STM and sensory memory, not LTM
C. **Recall task findings**
   1. **Primacy effect:** Higher likelihood of remembering earlier rather than later information (due to **rehearsal**)
   2. **Recency effect:** Higher likelihood of remembering last information (because it is still in STM)
D. **Reconstructive nature of memory:** Remembering by combining elements of experience with existing knowledge; often through use of **schemas** (organized knowledge structures stored in memory that are used to guide comprehension and memory)
E. **Interference in LTM:** Can occur via **proactive interference** (early learning disrupts later learning) or **retroactive interference** (later learning disrupts earlier learning)
F. **Types of amnesia**
   1. **Anterograde amnesia:** Patient cannot form new memories *after* brain injury
   2. **Retrograde amnesia:** Patient cannot remember events *prior to* brain injury

CONTINUED ON OTHER SIDE

LANGUAGE, THINKING, AND INTELLIGENCE

LANGUAGE

Language is a system of symbols used to represent and communicate information.

A. Elements of all language
1. **Phoneme:** The smallest unit of sound in language
2. **Morpheme:** The smallest sound unit that carries meaning
3. **Syntax:** The way in which words are arranged into phrases and sentences. Two types of structure:
   a. **Surface structure:** The way words are organized
   b. **Deep structure:** The meaning of sentences

B. Language acquisition: Learning occurs in stages
1. Babies innately practice with phonemes (babbling)
2. **Telegraphic speech:** Using short phrases to form primitive sentences

C. Language disorders (aphasias): Absence of some part of the ability to use language
1. **Broca's aphasia:** Inability to produce fluent speech
2. **Wernicke's aphasia:** Inability to comprehend speech

THINKING

Thinking refers to mental activities used to reason or reflect.

A. Mental representations: Representations of knowledge and thought. Two types:
1. **Analogical:** The representation has some of the qualities of the thing it represents
2. **Symbolic:** The representation has none of the qualities of the thing it represents

B. Visual (mental) imagery: Representations of sensory experience that occur in the brain, without the presence of sensory input

C. Concept formation: Mental classification of objects and events based on common features
1. **Concept:** A class or category with individuals or subtypes (birds)
2. **Prototype:** The best example of a concept (sparrow)

D. Problem solving: The use of a set of information to achieve a goal. Two main strategies:
1. **Algorithm:** A systematic step-by-step method of trying every possible solution
2. **Heuristic:** Use of a rule of thumb that worked in the past; does not guarantee a solution
   a. **Availability heuristic:** Judging a situation based on the frequency with which similar situations come to mind
   b. **Representativeness heuristic:** Judging a situation based on how similar it is to a prototypical situation, regardless of how common the situation is

E. Decision-making: The process of choosing between options
1. **Framing:** The way a problem is posed affects the perception of how it is best solved

F. Reasoning: The determination of the conclusions that can be drawn from examples or assertions
1. **Inductive reasoning:** The construction of conclusions from particular examples
2. **Deductive reasoning:** The process of deciding whether a conclusion can be drawn from the premises or facts

INTELLIGENCE

A. Theories of intelligence
1. **Spearman:** One basic factor in intelligence, called **g factor**. Performance based on g and ability specific to a skill (writing test score depends on g and verbal skill)
2. **Sternberg:** Three types of intelligence: analytic, practical, and experiential
3. **Gardner:** Seven types of intelligence: linguistic, logical, musical, spatial, kinesthetic, interpersonal, and intrapersonal

B. Ways of measuring intelligence
1. **Intelligence quotient (IQ) test:** Calculates the difference between a person's mental and chronological age. **IQ = (100 x mental age) / chronological age**
   a. Normal: 90–110; mental retardation: 70 and below
2. **Stanford-Binet scale:** Tests verbal, abstract/visual, and quantitative reasoning, along with short-term memory
3. **Weschler adult scale:** Tests general knowledge, verbal, mathematical, spatial skills

C. Intelligence testing guidelines
1. Intelligence tests are **standardized**, which means that uniform procedures are used when administering and scoring tests
2. When scoring tests, researchers use **norms**, which provide information about how a person's test score compares with the scores of other test-takers

DEVELOPMENT

Development refers to the way in which humans grow and change over the course of their lives. Developmental processes include **learning** (nurture), which refers to environmental influence on the growth process, and **maturation** (nature), which refers to genetic and biological influences on the growth process.

PHYSICAL DEVELOPMENT

A. Infant stage: Babies born with automatic reflex behaviors (e.g., rooting, sucking, grasping, startle)

B. Adolescence: More myelination of the frontal lobes may allow for greater self-control

C. Aging: Older adults often experience a decline in short-term memory and attention

SOCIAL DEVELOPMENT

Social development is the growth in how one relates to others.

A. Attachment: Emotional connection or relationship between caretaker and baby
1. **Harlow's monkey studies:** Showed that fear of unknown produces attachment
   a. Monkeys preferred soft, cuddly surrogate mothers even if they did not have food
   b. Monkeys raised without mothers were socially incompetent, aggressive, and unable to raise their own babies
2. **Three styles of attachment (Ainsworth):**
   a. **Secure attachment:** Warm relationship exists between baby and mother; infant is not afraid of abandonment
   b. **Resistant attachment:** Close relationship exists between baby and mother, but baby is afraid of abandonment.
   c. **Avoidant attachment:** Distant relationship between baby and mother, and child seems indifferent to whether mother is present

B. Socialization: The process by which one acquires the patterns of behavior of one's society
1. Parents are one means of socialization. There are three major **parenting** styles:
   a. **Autocratic:** Parents are strict and rigid and require obedience and conformity to rules
   b. **Authoritative-reciprocal** (most effective): Parents are firm but fair; make and enforce rules but allow questions and encourage reasonable independence
   c. **Permissive:** Parents do not make many rules or enforce the ones they make

C. Erickson's eight stages of psychosocial development: A series of conflicts must be resolved throughout the course of development to attain a healthy personality
1. Trust vs. mistrust *(birth–18 mos.)*
2. Autonomy vs. shame/doubt *(18 mos.–3 yrs.)*
3. Initiative vs. guilt *(3–6)*
4. Competence vs. inferiority *(6–12)*
5. Identity vs. role confusion *(12–18)*
6. Intimacy vs. isolation *(19–40)*
7. Productivity vs. stagnation *(40–65)*
8. Ego integrity vs. despair *(65–death)*

D. Psychosexual development: Differentiation into gender role or sexual identity
1. **Gender roles:** Behavioral patterns considered appropriate for men and women
2. **Freudian theory:** Four stages (oral stage, anal stage, phallic stage, genital stage)

COGNITIVE DEVELOPMENT

Cognitive development refers to an individual's intellectual growth from infancy to adulthood.

A. Piaget's theory: Children construct **schemas** (mental patterns) that tell them how things relate to each other and what they should expect to experience in the world
1. **Two processes** responsible for all development
   a. **Assimilation:** Addition of new items to schemas
   b. **Accommodation:** Changing of schemas in response to new information
2. **Piaget's stages of development**
   a. **Sensory-motor intelligence** *(birth–2)*: Creation of **object permanence** (the understanding that objects exist independent of our own senses or interactions)
   b. **Preoperational period** *(age 2–7)*: Symbolic representation, use of language; learn **conservation** (value is constant even if the appearance or arrangement changes)
   c. **Concrete operations** *(age 7–11)*: Logical thinking about concrete objects; learn empathy; learn a new, complex set of schemas of ideas called **operations**
   d. **Formal operations** *(11–adult)*: Abstract reasoning and hypothesis testing

MORAL DEVELOPMENT

Kohlberg's stages of moral development explore what drives moral reasoning and behavior

A. Preconventional: Avoiding punishment or desiring gain

B. Conventional: Internalizing outside authority; loyalty to social standards

C. Postconventional: Weighing alternatives and making personal choices based on universal standards of justice and human rights, not only laws or customs

MOTIVATION, EMOTION, AND STRESS

MOTIVATION

Motivation refers to the process of acting to satisfy a goal.

A. Biological reasons for motivation
1. **Homeostasis:** Maintaining internal equilibrium
2. **Physiological drives:** For proper temperature, water, food, sex, and to avoid pain

B. Social reasons for motivation
1. **Intrinsic:** Take action because the act itself is rewarding
2. **Extrinsic:** Take action because the act is rewarded by outside factors

C. Motivation theories
1. **Drive-reduction theory:** Motivated by need to reduce a negative bodily state
2. **Opponent-process theory:** Motivated by a desire to maintain homeostasis and counteract a deviation from normal state
3. **Maslow's hierarchy of needs:** The order of needs we are motivated to satisfy: Bodily needs ➡ safety needs ➡ belonging/love ➡ esteem ➡ self-actualization (top of hierarchy)

EMOTION

Emotion involves physical and cognitive arousal and affects motivation. Theories of emotion:

A. James-Lange theory: Experiencing an emotion is a result of perceiving a bodily response to arousing stimuli

B. Cannon-Bard theory: We feel both emotion and bodily response due to arousing stimuli

C. Schacter-Singer (attribution-of-arousal) theory: Stimuli trigger a state of physiological arousal, but the emotional experience depends on interaction between the bodily response and cognitive interpretation of the stimulus

STRESS

Stress involves a physical and psychological response to an event or change. Refers both to events (**stressors**) and to how we react to the changes (**stress reactions**)

A. Stressors may be positive (e.g., a wedding) or negative (e.g., loss of a job)

B. General adaptation syndrome (Selye): Three-stage process of stress response (alarm, resistance, exhaustion)

C. Personality types affect how people respond to stress
1. **Type A personality:** Stress triggers hostility, anger, competitiveness; higher heart disease risk
2. **Type B personality:** Copes well with stress; easygoing

CONSCIOUSNESS AND SLEEP

CONSCIOUSNESS

Consciousness refers to our level of awareness of our own existence, thoughts, feelings, and our environment.

A. Levels of consciousness
1. **Conscious:** Information that is currently the subject of attention
2. **Preconscious:** Information that is not being attended to but could be attended to later
3. **Subconscious:** Information that we are not aware of but that exists and affects us
4. **Nonconscious:** Body processes controlled by our mind that we do not attend to
5. **Unconscious:** Cognitive activity outside our awareness

B. Drugs: Drugs can alter consciousness by increasing or blocking the effects of neurotransmitters
1. **Agonist:** A drug that mimics effects of neurotransmitters
2. **Antagonist:** A drug that blocks neurotransmitters
3. **Types of drugs:**
   a. **Stimulants** (caffeine, nicotine, amphetamines): Speed up the nervous system
   b. **Depressants** (alcohol, barbiturates): Slow down the nervous system
   c. **Opioids** (narcotics): Relieve pain and produce euphoria
   d. **Hallucinogens** (LSD, marijuana): Change perceptions of reality

C. Hypnosis: Hypnosis is a procedure that opens people to the power of suggestion. Once a subject is in an altered state during hypnosis, he or she may act, perceive, think, or feel according to the hypnotist's suggestions.

SLEEP-WAKE CYCLE

Sleep is a state of consciousness.

A. Awake: Alpha-rhythm brain waves (resting); beta-rhythm brain waves (active thought)

B. Slow-wave sleep: Non-rapid eye movement (NREM) cycle (90 minutes)
Stage 1: Light sleep, transition from waking
Stage 2: Deeper sleep
Stage 3: Slow-wave (delta) sleep
Stage 4: Deepest type of sleep

C. REM sleep: Rapid eye movement cycles (10–15 minutes long, throughout sleep). Vivid dreams occur; body is paralyzed; important for memory consolidation and learning.

PERSONALITY

Personality refers to the behaviors, attitudes, and emotions that characterize an individual.

TRAIT APPROACH

The **trait approach** emphasizes underlying traits.

A. **Three-factor model (Eysenck):** People differ on three main personality factors
   1. **Extraversion** (other-focused, outgoing) vs. **introversion** (self-focused, quiet, shy)
   2. **Neuroticism** vs. **stability**
   3. **Psychoticism** vs. **self-control**

B. **The five-factor model, or Big Five (Norman):** Personality is described using five traits: extroversion, neuroticism, openness, agreeableness, and conscientiousness

BEHAVIORAL-COGNITIVE APPROACH

The **behavioral-cognitive approach** emphasizes environment and situations.

A. **Behaviorists:** Reinforcement of behavior (operant conditioning) determines personality
B. **Social learning:** Personality is also formed by modeling (the observation of behavior)

PSYCHODYNAMIC APPROACH

A. **Freud's theory:** Personality differences arise from unconscious conflicts and desires
   1. **Three subsystems of personality**
      a. **Id:** Most primitive; unconscious, infantile; **pleasure principle** (instant gratification)
      b. **Ego:** Rational, logical; upholds the **reality principle** (functions within reality)
      c. **Superego:** Conscience; internalized social rules; punishes ego with guilt
   2. **Anxiety:** An unpleasant emotional state. Several **defense mechanisms** protect the ego from anxiety:
      a. **Repression:** Pushing of thoughts, impulses, and memories out of consciousness
      b. **Displacement:** Redirection of an impulse from one channel into another
      c. **Reaction formation:** Transformation of a forbidden impulse into its opposite
      d. **Rationalization:** Reinterpretation of unacceptable thoughts
      e. **Projection:** Attribution of unacceptable thoughts and impulses to another person rather than oneself

B. **Criticisms of Freud:** Critics contend that Freud's theories are not testable, do not predict behavior, and are not based on wide samples

HUMANISTIC THEORIES

Humanistic theories focus on whether people achieve their potential.

A. **Maslow:** The individual strives to fill a hierarchy of needs to attain self-actualization
   1. **Hierarchy of needs:** Levels of needs, with physiological needs (e.g., food, water) at the bottom and esteem and achievement higher up
   2. **Self-actualization:** The desire to realize one's fullest potential; resides at top of hierarchy

B. **Rogers:** Focuses on the importance of the self-concept
   1. **Self-concept:** The sense of the self as both an agent (I) and object (me)

PERSONALITY ASSESSMENT

A. **Self-reported tests**
   1. **MMPI (Minnesota Multiphasic Personality Inventory):** Questionnaire used to diagnose psychological disorders
   2. **CPI (California Personality Inventory):** Nonclinical test for personality traits

B. **Projective techniques:** The individual interprets ambiguous stimuli
   1. **Rorschach:** The individual discusses inkblots or unstructured forms
   2. **TAT (Thematic Apperception Test):** Individuals tell stories about scenes

SOCIAL PSYCHOLOGY

Social psychology is the study of how individuals relate to others.

SOCIAL COGNITION

Social cognition refers to the way we interpret and understand social events.

A. **Social comparison:** Individuals judge their thoughts and behaviors by comparing selves to the group. Reduces doubt about one's beliefs (Asch's perceptual judgment task).
B. **Attitudes:** Stable opinions that affect feelings, thoughts, and behaviors about an issue
   1. **Cognitive dissonance:** Inconsistency among experiences, beliefs, or feelings. People are motivated to reinterpret experiences, beliefs, feelings so they are consistent.
C. **Stereotyping:** Beliefs about people based on their group membership
D. **Prejudices:** Undeserved, negative beliefs about people based on their group membership
E. **Attribution:** How one explains one's own and others' behavior. Includes **situational** (attribute behavior to environment) and **dispositional** (attribute behavior to something within a person).
   1. **Fundamental attribution error:** The tendency to explain behavior as an effect of disposition rather than situation
   2. **Self-serving bias:** Attributing one's successes to internal causes and one's failures to external causes; taking credit for successes rather than failures
F. **Social role theories:** Behavior is a function of a person's social role (such as gender or race)
   1. **Role:** Social position governed by **norms** (conventions); more relevant when person is away from the group
   2. **Zimbardo's prison study:** Students assigned to guard or prisoner roles and behavior changed to fit the assigned role (guards, abusive; prisoners, passive and scared)

THE SELF

A. **Self-concept:** One's thoughts about the self
B. **Self-esteem:** One's judgment about the value and worth of the self
C. **Self-consciousness:** The tendency to pay attention to what the self is doing, thinking, and feeling
D. **Self-monitoring:** The ability to shape one's own behavior to conform to the demands of the group or situation
E. **Self-perception theory (Bem):** One indirectly infers one's own attitudes and feelings by observing one's own behavior and using attribution processes

ONE-ON-ONE INTERACTIONS

A. **Exchange relationships:** Most relationships are built on give-and-take in one form or another
B. **Love relationships** include **romantic** (passionate, obsessive) and **companionate** (characterized by trust, caring, affection)

GROUP DYNAMICS

A. **Group polarization:** Tendency of a group to express more extreme views than members would express as individuals
B. **Social facilitation effect:** Tendency for people to perform better when others are watching
C. **Bystander effect:** Diffusion of responsibility when a large group of people is present
D. **Conformity:** Tendency for people to follow the behavior of the group
E. **Compliance:** Tendency for people to obey a request by an authority
   1. **Milgram** studied obedience to authority
      a. Subjects were assigned as teachers, told to shock learners if they answered incorrectly
      b. Many subjects continued to follow instructions even when they believed they were delivering dangerous levels of shock

ABNORMAL PSYCHOLOGY

WHAT IS INSANITY?

A. Five ways to define **abnormality:**
   1. Condition is considered abnormal in the person's culture
   2. Condition causes personal distress to the subject
   3. Condition prevents functional living in society
   4. Condition makes the person a danger to self or others
   5. Condition calls into question a person's legal responsibility for actions

B. **Rosenhan sanity study:** Showed difficulty diagnosing insanity; Rosenhan and associates (all sane) reported hallucinations to gain admittance to psychiatric ward. Once admitted, "plants" were treated as insane patients.

TYPES OF DISORDERS

Psychological disorders are defined by the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV)

A. **Anxiety disorders**
   1. **Phobias:** Intense, irrational fears of specific items or situations; include **agoraphobia** (fear of open, public spaces) and **social phobia** (fear of embarrassing social situations)
   2. **Generalized anxiety disorder (GAD):** Chronic, pervasive low-level anxiety
   3. **Panic disorder:** Intermittent anxiety, characterized by **panic attacks** (episodes of frightening mental and physical symptoms)
   4. **Obsessive-compulsive disorder (OCD):** Includes **obsessions** (uncontrollable, repetitive internal thoughts that cause anxiety) and **compulsions** (behaviors performed to counteract obsessive thoughts)

B. **Mood disorders**
   1. **Major depression:** Characterized by unhappiness, fatigue, loss of appetite, low self-esteem
   2. **Bipolar disorder (manic depression):** Periods of depression followed by periods of **mania** (high energy, lack of inhibition)
   3. **Seasonal affective disorders:** mood affected by time of year, and/or lack of sunlight

C. **Dissociative disorders:** Includes **amnesia** (person loses memory for personal identity) and **identity** (two or more distinct personalities in one person)
D. **Somatoform disorders:** Disorders that take bodily form (e.g., hypochondriasis, conversion)
E. **Schizophrenia**
   1. **Positive symptoms:** Hallucinations, disorganized thought and speech, delusions (false beliefs)
   2. **Negative symptoms:** Lack of speech and emotional expression, social withdrawal
   3. Types of schizophrenia
      a. **Catatonic:** Motionlessness, sudden frenziedness, and holding of contorted postures
      b. **Disorganized:** Incoherence, inappropriate emotional reactions
      c. **Paranoid:** Delusions of persecution and grandeur

F. **Personality disorders:** Stable patterns of experience and behavior that differ noticeably from patterns that are considered normal by a person's culture. Disorders include **antisocial personality disorder** and **narcissistic personality disorder**.

TREATMENT OF PSYCHOPATHOLOGY

PSYCHOTHERAPY

Five main **psychological therapies** are used to treat psychopathology.

A. **Classical psychoanalysis (Freud):** Helps clients (patients) uncover and resolve repressed, unconscious childhood conflicts; involves four main techniques
   1. **Free association:** Client says whatever comes to mind; technique uncovers unconscious meanings and preoccupations
   2. **Transference:** Client transfers conflicts and emotions onto psychoanalyst; shows client how they feel about important people
   3. **Resistance:** Focuses on what client refuses to talk about; helps client recall repressed memories
   4. **Dream analysis:** Involves interpretation of dream imagery, because unconscious conflicts manifest as symbols in dreams

B. **Psychodynamic therapy:** Modified version of psychoanalysis that explores unconscious conflicts based on cultural or interpersonal factors, not childhood
C. **Humanistic therapies:** Treats the whole person; involves two main techniques
   1. **Person-centered therapy (Rogers):** Based on belief in fundamental goodness of humans; therapist encourages client to achieve self-actualization via three techniques:
      a. **Unconditional positive regard:** Person is valued no matter what
      b. **Authenticity:** Therapist is always honest
      c. **Empathy:** Therapist must feel what the patient is feeling
   2. **Existential therapy:** Tries to imbue meaning in client's life. Helps client take responsibility and exercise free choice. Goal is to make client feel life is authentic.

D. **Behavior therapies:** Treatments that involve changing behavior with little or no attention to the causes of the behavior. Effective for phobias. Involves three main techniques.
   1. **Exposure techniques:** Breaks connection between stimuli and the resulting fears
      a. **Extinction:** Therapist presents a stimulus without the threatening response, so that the associated fear will eventually disappear
      b. **Systematic desensitization:** Therapist teaches client to replace feelings of fear with relaxation; exposes client to hierarchy of stimuli called **anxiety hierarchy**
   2. **Aversion therapy:** Pairing client's habit with an unpleasant stimulus so client breaks the habit
   3. **Operant conditioning:** The control of behavior through reinforcement; enforces the connection between behavior and consequences. Involves two main techniques:
      a. **Token economy:** Provides rewards for desired behaviors
      b. **Contingency management:** Client learns that behaviors have strict consequences

E. **Cognitive therapies:** Treatments that change the client's thought patterns
   1. **Rational-emotive therapy (Ellis):** Confronts and changes client's irrational beliefs
   2. **Cognitive therapy (Beck):** Replaces negative thoughts with positive thoughts

BIOLOGICAL/MEDICAL TREATMENT

Three main **medical therapies** are used to treat psychopathology.

A. **Drug therapy (psychopharmacology):** Drugs can be effective but can also have negative side effects. There are three main categories of drugs:
   1. **Antidepressants:** Used to treat depression. Two main types:
      a. **SSRIs:** Allow serotonin to stay in synapses; increase activity of serotonin (e.g., Prozac)
      b. **MAO inhibitors:** Prevent breakdown of monoamines such as serotonin (e.g., Nardil)
   2. **Anxiolytics:** Used to treat anxiety
      a. **Benzodiazepines:** Tranquilizers (e.g., Valium)
   3. **Antipsychotics:** Used to treat symptoms of schizophrenia, such as delusions and agitation (e.g., Clozapine)

B. **Electroconvulsive therapy (ECT):** Treatment for major depression. Doctor uses electric shocks through brain hemisphere(s) to induce seizures. Side effects include muscle aches and memory loss.
C. **Surgery:** Treatment that physically changes the brain (such as prefrontal lobotomy)