**Quick Review**

**Psychological Research**

* Researchers use the terms **variable**, **subject**, **sample**, and **population** when describing their research.
* Psychologists do research to measure and describe behavior; to understand when, why, and how events occur; and to apply knowledge to real-world problems.

**The Scientific Method**

* Psychologists use the **scientific method**, which is a standardized way of making observations, gathering data, forming theories, testing predictions, and interpreting results.
* Research must be **replicable**, **falsifiable**, **precise**, and **parsimonious**.

**Research Methods**

* Psychologists use descriptive or **correlational methods** such as **case studies**, **surveys**, **naturalistic observation**, and **laboratory observation** to describe events, experiences, or behaviors and to look for links between them.
* Researchers use **tests** to collect information about personality traits, emotional states, aptitudes, interests, abilities, values, or behaviors.
* Tests must be reliable and valid.
* Researchers use **experiments** to collect information about causal relationships between variables.
* In experiments, researchers include **experimental** and **control groups**.
* **Bias** is the distortion of results by a **variable**.
* Types of bias include **sampling bias**, **subject bias**, and **experimenter bias**.

**Ethical Considerations**

* Psychologists must consider **ethical norms** when doing research involving humans or animals.

**Interpreting Data**

* Researchers analyze and interpret the data they’ve collected by using **descriptive statistics** and organizing their information in **histograms** or **bar graphs**.
* Researchers use **inferential statistics** to determine the likelihood that a result is due simply to chance.
* **Statistical significance** means that a result is probably not due to chance.

**Principles of Genetics**

* **Behavior geneticists** study the genetic basis of behavior and personality differences among people.
* The more closely people are biologically related, the more genes they share.
* Traits can be **monogenic** (determined by one gene) or **polygenic** (determined by several genes).
* Researchers use **heritability** to determine how much of a trait’s variation within a population is due to genes.

**Types of Genetic Studies**

* Psychologists use **family studies**, **twin studies**, and **adoption studies** to see whether, and to what extent, characteristics are genetic.
* Heredity interacts with environment to influence psychological traits.

**Evolution and Natural Selection**

* **Evolution** is the change in the frequency of genes in a population.
* **Charles Darwin** proposed the **theory of natural selection**, which states that inherited characteristics that give an organism a **survival or reproductive advantage** are passed on more often to future generations than other inherited characteristics.
* An **adaptation** is an inherited characteristic that increases in a population because it provides a survival or reproductive advantage.
* **Inclusive fitness** is the reproductive fitness of an individual organism plus any effect that the organism has on increasing reproductive fitness in related organisms.
* Evolution relies on **mutations**,or small changes in genes.

**Evolutionary Psychology**

* Evolutionary psychologists use **evolutionary theory** to explain patterns in psychological characteristics.
* Researchers study **mating behavior** to investigate aspects of evolutionary psychology.
* **Parental investment** refers to all the resources spent to produce and raise offspring.
* **Sexual selection** refers to the tendency of females to choose mates based on certain characteristics, which are then passed on to their male offspring.

**The Nervous System**

* The **nervous system** comprises the **central nervous system** and the **peripheral nervous system**.
* The central nervous system consists of the **brain** and the **spinal cord**. The spinal cord connects the brain to the rest of the body.
* The peripheral nervous system consists of the **somatic nervous system** and the **autonomic nervous system**. The somatic nervous system affects voluntary muscles and organs. The autonomic nervous system affects the heart, blood vessels, glands, and smooth or involuntary muscles.
* The autonomic nervous system contains the **sympathetic nervous system**, which prepares the body for emergency action, and the **parasympathetic nervous system**, which helps the body conserve energy and relax.

**Neurons: Cells of the Nervous System**

* **Glial cells** support neuron function.
* **Neurons**, the other type of cell in the nervous system, receive, integrate, and pass along information.
* A neuron contains the **soma**, **dendrites**, **axon**, and **myelin sheath**.
* **Terminal buttons** at the ends of axons release **neurotransmitters** or chemicals that cross over to neighboring neurons.
* The space between neurons is the **synapse**.
* The **resting potential** of a neuron is the stable negative charge inside the neuron when it is inactive.
* The **action potential** is a temporary change in electric charge inside a neuron.
* Neural impulses conform to the **all-or-none law**, which means that neurons fire to generate an action potential only if stimulation reaches a minimum threshold.
* In neural communication, receptor sites on postsynaptic cells can be **excitatory** or **inhibitory**.

**Neurotransmitters**

* **Neurotransmitters** are chemicals that enable neurons to communicate with each other.
* Major neurotransmitters include **acetylcholine**, **dopamine**, **serotonin**, **endorphins**, **norepinephrine**, **GABA**, and **glutamate**.
* **Agonists** are chemicals that mimic the action of neurotransmitters.
* **Antagonists** are chemicals that block the action of neurotransmitters.

**Studying the Brain**

* Researchers use **lesioning** and **electric stimulation of the brain** to study animals.
* To study human brains, researchers use **electroencephalographs**, **computerized tomography**, **magnetic resonance imaging**, and **positron emission tomography**. Researchers also study the impact of brain injuries and diseases.

**Structure and Functions of the Brain**

* The brain consists of the **hindbrain**, **midbrain**, and **forebrain**. Each section of the brain contains subsections, which control different functions.
* The hindbrain contains the **medulla**, the **pons**, and the **cerebellum**.
* The midbrain contains a dopamine-releasing system and helps us to locate events in space.
* The forebrain is the largest part of the brain and includes the **thalamus**, the **hypothalamus**, the **limbic system**, and the **cerebrum**.
* **Lateralization** refers to how the right and left sides of the brain specialize in different functions. The left hemisphere processes verbal skills, while the right side processes nonverbal tasks.
* The left side of the brain affects the functioning of the right side of the body. Conversely, the right side of the brain affects the functioning of the left side of the body.

**The Endocrine System**

* The **endocrine system**, which consists of glands that release hormones, also helps communication within the body.
* **Hormones** are chemicals that regulate body functions.
* The **pituitary gland** is the master gland of the endocrine system.
* Major hormones include **thyroxine**, **insulin**, **melatonin**, **adrenal hormones**, **androgens**, **estrogens**, and **progesterone**.

**Theories of Development**

* Many psychologists have proposed stage theories of development, which argue that people pass through **stages** in specific orders, with challenges related to age and different capacities emerging in each stage.
* **Sigmund Freud** first described personality development in terms of stages and believed personality developed by age five.
* **Erik Erikson** proposed a theory of psychosocial development that occurs in eight stages over a person’s lifetime. He proposed that people face new challenges at each stage: **trust vs. mistrust**, **autonomy vs. shame and doubt**, **initiative vs. guilt**, **industry vs. inferiority**, **identity vs. role confusion**, **intimacy vs. isolation**, **generativity vs. self-absorption**, and **integrity vs. despair**.
* **Jean Piaget**’s theory of cognitive development states that children develop **schema** or mental models to represent the world. He proposed four stages of cognitive development: the **sensorimotor period**, the **preoperational period**, the **concrete operational period**, and the **formal operational period**.
* **Lawrence Kohlberg** proposed a theory of moral development that includes three levels or stages: the **preconventional level**, the **conventional level**, and the **postconventional level**.

**Prenatal Development**

* **Prenatal development** occurs between conception and birth.
* Prenatal development is divided into three stages: the **germinal stage**, the **embryonic stage**, and the **fetal stage**.

**Infancy and Childhood**

* **Motor development** or increasing coordination of muscles improves rapidly in infancy and childhood.
* **Maturation** is genetically programmed growth and development. Maturation and experience influence motor development.
* **Temperament** refers to the personality features a person is born with. **Alexander Thomas** and **Stella Chess** proposed three basic types of temperament: easy, slow to warm up, and difficult.
* **Attachment** is the close bond between babies and their caregivers. **Margaret and Harry Harlow** concluded that attachment requires **contact comfort**, which is the comfort deriving from physical closeness.
* After conducting an experiment called the Strange Situation, **Mary Ainsworth** proposed three types of **attachment styles**: **secure attachment**, **anxious-ambivalent attachment**, and **avoidant attachment**.
* **Separation anxiety** is the emotional distress infants show when separated from people to whom they are attached.
* **Gender** is the learned distinction between masculinity and femininity. **Gender stereotypes** are societal beliefs about the characteristics of males and females.
* Depending on their perspective, researchers ascribe different causes for gender differences.

**Adolescence**

* **Pubescence** refers to the two years before puberty and entails growth spurts and the development of secondary sex characteristics. **Secondary sex characteristics** are sex-specific physical traits that are not essential to reproduction, such as breasts, widened hips, facial hair, and deepened voices.
* **Puberty**, the point at which sexual organs mature, occurs at the beginning of adolescence. **Menarche** refers to the first menstrual period.
* On average, puberty occurs between ages ten and fifteen for girls and eleven and sixteen for boys. Maturing before or after these ages can have adverse consequences.
* The search for identity is an important step in adolescence. James Marcia described four identity stages: **identity foreclosure**, **identity moratorium**, **identity diffusion**, and **identity achievement**.

**Adulthood**

* Adulthood usually includes experiences such as marriage, parenthood, the empty nest, the midlife crisis, **menopause**, and aging.
* **Social clocks** indicate the typical life events, behaviors, and concerns for a particular age.
* As people age, they tend to experience loss of neurons in the brain, a decline in vision and hearing, and decreased memory. People may also experience increased **crystallized intelligence**, which is intelligence based on accumulated knowledge and skills. Physical exercise and mental stimulation can create new neural brain connections, and older adults generally have a better sense of well-being.

**The Senses**

* **Psychophysics** studies the relationship between the physical properties of stimuli and people’s experience of stimuli.
* Psychologists assess the acuity of our senses by measuring the **absolute threshold** and the **difference threshold** and by applying **signal detection theory**.
* **Sensory adaptation** is the decrease in sensitivity to an unchanging stimulus.
* Babies are born with all the basic sensory abilities and some perceptual skills, which develop and become more sensitive over time.

**Vision**

* The sense of vision depends on **light**, which is a kind of electromagnetic radiation emitted by the sun, stars, fire, and lightbulbs.
* We experience light as color, brightness, and saturation, which depend respectively on **wavelength**, **amplitude**, and **complexity** of light waves.
* The eye is composed of the **cornea**, the **iris**, the **pupil**, the **lens**, the **retina**, and the **fovea**. The lens adjusts its shape to focus light from objects that are near or far away in a process called **accommodation**.
* **Dark and light adaptation** are processes by which receptor cells sensitize and desensitize to light, respectively.
* The retina has millions of photoreceptor cells called **rods** and **cones**. Rods and cones connect via synapses to bipolar neurons, which connect to ganglion cells. The axons of the ganglion cells make up the **optic nerve**, which connects to the eye at the **optic disk**, also called the blind spot.
* After being processed in the brain, visual signals reach the primary visual cortex, where **feature detectors** respond to the signals.
* Color is a psychological experience created when the eyes and the brain interpret light.
* **Trichromatic theory**, or the **Young-Helmholtz theory**, states that there are three types of cones in the retina, which are sensitive to light of different wavelengths corresponding to red, green, or blue. This theory accounts for **color blindness**.
* The **opponent process theory** states that receptors act in opposite ways to wavelengths associated with three pairs of colors: red vs. green, blue vs. yellow, and black vs. white. The theory accounts for the perception of four primary colors. It also accounts for **afterimages**, or colors perceived after other complementary colors are removed.
* **Gestalt psychology** proposes that the perceived whole sometimes has properties that didn’t exist in the parts that make it up. An example is the **phi phenomenon**, in which an illusion of movement occurs when images are presented in a series, one after another.
* Gestalt psychologists describe principles people use to organize vision into units that make sense, including: **figure** and **ground**, **proximity**, **closure**, **similarity**, **continuity**, and **simplicity**.
* **Binocular and monocular cues** enable people to determine distance from an object.
* **Perceptual constancy** is the ability to recognize that an object is the same when it produces different images on the retina. Visual constancies relate to **shape**, **size**, **brightness**, **color**, and **location**.
* Visual **illusions** are misinterpretations of visual stimuli.
* **Selective attention** is the ability to focus on some pieces of sensory information and ignore others.

**Hearing**

* Hearing depends on **sound waves**. Sound has three features: loudness, pitch, and **timbre**, which depend respectively on wave **amplitude**, **frequency**, and **complexity**.
* The ear comprises the outer ear, the middle ear, and the inner ear. These parts contain the **pinna**, the eardrum, **ossicles**, oval window, **cochlea**, and **cilia**.
* Neurons in the ear form the **auditory nerve**, which sends impulses from the ear to the brain. The thalamus and auditory cortex receive auditory information.
* **Place theory** and **frequency theory** explain how people distinguish the pitch of different sounds.

**Taste and Smell**

* The stimuli for taste and smell are chemicals.
* Taste occurs when chemicals stimulate receptors in the tongue and throat.
* The five tastes are **salty**, **sweet**, **sour**, **bitter**, and **umami**.
* Smell occurs when chemicals in the air are inhaled into the nose. Smell receptors send impulses along the olfactory nerve to the brain.

**Position, Movement, and Balance**

* **Kinesthesis** is the sense of the position and movement of body parts.
* The sense of balance gives information about where the body exists in space and involves the vestibular system.
* The main structures of the **vestibular system** are the **semicircular canals**.

**Touch**

* The sense of touch encompasses **pressure**, **pain**, **cold**, and **warmth**.
* Pressure has specific receptors.
* The **gate-control theory** of pain proposes that pain signals traveling from the body to the brain pass through a gate in the spinal cord. This gate is a pattern of neural activity that prevents pain signals or admits them.

**Consciousness**

* **Consciousness** is the awareness people have of themselves and the environment around them.
* The level and state of consciousness vary. Different states of consciousness are associated with different brain wave patterns. **Brain waves** are tracings that show the kind of electrical activity going on in the brain. Scientists use an **electroencephalograph,** or EEG, to record these waves.
* The main types of brain waves are **alpha**, **beta**, **theta**, and **delta**.

**Sleep**

* Types of **biological rhythms** include **circadian**, **infradian**, and **ultradian rhythms**.
* **Endogenous biological rhythms** originate from inside the body rather than from the outside environment.
* Biological clocks in the body regulate the sense of time.
* The **suprachiasmatic nucleus** regulates circadian rhythms of sleep.
* Different theories suggest that people sleep to conserve energy, stay safe from predators, or restore body tissues depleted during the day.
* Researchers use **EEGs**, **EMGs**, **EOGs**, and **EKGs** to record sleep patterns.
* There are five stages of sleep. At each stage, different types of brain waves function, and heart rate, breathing, and temperature vary.
* During **REM sleep**, heart rate and breathing become irregular, eyes move rapidly, and muscles relax. Dreams are most vivid during REM sleep.
* Sleep patterns change as people age, with most people needing less sleep as they get older.
* Sleep disorders include **insomnia**, **narcolepsy**, and **sleep apnea**.

**Dreams**

* **Sigmund Freud** believed that dreams allow people to express unconscious wishes. He said the **manifest content** of dreams, or the dream’s plot, symbolizes the **latent content**, or hidden meaning.
* The **activation-synthesis theory** proposes that neurons in the brain randomly activate during REM sleep. Dreams arise when the cortex tries to make sense of these impulses.
* Some researchers think dreams express people’s most pressing concerns, while others think dreams arise during the brain’s routine housekeeping chores such as eliminating or strengthening neural connections.

**Altered States**

* **Altered states** are induced states of consciousness and include hypnotic states, meditative states, and drug-induced states.
* In **hypnosis**, a hypnotist makes suggestions to a person. One theory states that people in hypnosis divide their consciousness into two parts. Other theories say that people merely play a role when hypnotized.
* **Meditation** is the practice of focusing attention.
* **Psychoactive drugs** are usually used for recreational rather than medical purposes, though some have legitimate medical uses. These drugs change sensory experience, perception, mood, thinking, and behavior.
* Recreational drugs include **stimulants**, **sedatives**, **narcotics**, and **hallucinogens**.
* Drugs work by affecting neurotransmitter function in various ways.
* The effect of any drug depends on many factors such as the amount of the drug, how the drug is administered, and the user’s mood, personality, and motivation.
* Chronic use of drugs can result in **tolerance**, **withdrawal symptoms**, **physical dependence**, or **psychological dependence**.
* Drug use can be dangerous.

**Classical Conditioning**

* **Ivan Pavlov** was the first to describe **classical conditioning**, the type of learning in which a subject comes to respond to a neutral stimulus as he would to another stimulus by learning to associate the two stimuli.
* An **unconditioned response** is the naturally occurring response; an **unconditioned stimulus** is the stimulus that evokes an innate response. A **conditioned response** is the learned response; a **conditioned stimulus** is the learned or associated stimulus.
* A conditioned response is acquired when a conditioned stimulus is paired with an unconditioned stimulus.
* **Extinction** is the gradual weakening and disappearance of a conditioned response. **Spontaneous recovery** is the reappearance of an extinguished conditioned response when the conditioned stimulus returns after a period of absence.
* **Stimulus generalization** is the tendency to respond to a new stimulus as if it is the original conditioned stimulus. **Stimulus discrimination** is the tendency to lack a conditioned response to a new stimulus that’s similar to the original conditioned stimulus.
* **Higher-order conditioning** occurs when a neutral stimulus comes to act as a conditioned stimulus by being paired with another stimulus that already evokes a conditioned response.

**Operant Conditioning**

* **Operant conditioning** is a type of learning in which responses come to be controlled by their consequences.
* **B. F. Skinner** used a device called a **Skinner box** to study operant conditioning in rats. He set up the boxes so that the rats could automatically get rewards or punishments for particular types of responses.
* **Reinforcement** is delivery of a consequence that increases the likelihood that a response will occur. **Positive reinforcement** is the presentation of a stimulus after a response. **Negative reinforcement** is the removal of a stimulus after a response.
* **Punishment** is the delivery of a consequence that decreases the likelihood that a response will occur. **Positive punishment** is the presentation of a stimulus after a response. **Negative punishment** is the removal of a stimulus after a response.
* **Primary reinforcers** and **punishers** are naturally satisfying and unpleasant, respectively. **Secondary reinforcers** and **punishers** are satisfying or unpleasant, respectively, because they’ve become associated with primary reinforcers or punishers.
* **Shaping** is a procedure in which reinforcement is used to guide a response closer and closer to a desired response.
* A **reinforcement schedule** is the pattern in which reinforcement is given over time. Reinforcement can be **continuous** or **intermittent**.
* Intermittent reinforcement schedules include **fixed-ratio**, **variable-ratio**, **fixed-interval**, and **variable-interval** schedules.
* In operant conditioning, **extinction** is the gradual disappearance of a response when it stops being reinforced.
* A **discriminative stimulus** is a cue that indicates the kind of consequence that is likely to occur after a response. **Stimulus discrimination** is the tendency for a response to occur only when a particular stimulus is present.
* In operant conditioning, **stimulus generalization** is the tendency to respond to a new stimulus as if it’s the original discriminative stimulus.

**Biological Influences**

* Biological factors can limit conditioning.
* Aversion to a particular taste can be conditioned only by pairing the taste with nausea.
* **Instinctive drift** is the tendency for conditioning to be hindered by natural instincts.

**Cognitive Influences**

* Conditioning involves higher mental processes, as it depends on the predictive power of the conditioned stimulus rather than mere association of stimuli.

**Observational Learning**

* **Observational learning** is the process of learning to respond in a particular way by watching others, or models.
* **Albert Bandura** conducted experiments showing that children who watched adults behaving aggressively were more likely to behave aggressively themselves.

**Memory Processes**

* The three processes involved in memory are **encoding**, **storage**, and **retrieval**.
* **Encoding** is putting information into memory and includes **structural**, **phonemic**, and **semantic encoding**.
* In **storage**, information is maintained in a three-stage process involving **sensory memory**, **short-term memory**, and **long-term memory**.
* **Working memory** is an active system that allows people to remember, manipulate, and store information.
* Long-term memory is organized into **categories**, as well as by **familiarity**, **relevance**, and **relationship to other memories**.
* **Retrieval** is the process of getting information out of memory. **Retrieval cues** are stimuli that help get information out of memory.
* Retrieval cues include **associations**, **context**, and **mood**.

**Types of Memory**

* **Implicit memory** is unconscious retaining of information, whereas **explicit memory** is conscious, intentional remembering.
* **Declarative memory** is recall of factual information, whereas **procedural memory** is recall of how to do things.
* **Semantic memory** is recall of general facts, while **episodic memory** is recall of personal facts.

**Forgetting**

* **Hermann Ebbinghaus** was the first researcher to conduct scientific studies of forgetting. Using himself as a subject, he discovered that much information is forgotten within a few hours after learning it.
* **Retention** is the proportion of learned information that is remembered.
* Researchers use three methods to measure forgetting and retention: **recall**, **recognition**, and **relearning**.
* Causes of forgetting include ineffective **encoding**, **decay**, **interference**, **retrieval failure**, and **motivated forgetting**.

**Enhancing Memory**

* Memory is enhanced by **rehearsal**, **overlearning**, **distributed practice**, minimizing interference, deep processing, organizing information, **mnemonic devices**, and visual imagery.

**The Biology of Memory**

* The hippocampus is involved in long-term memory.
* Memories may be stored in different areas of the brain.
* There may specific neural circuits for particular memories.

**Distortions of Memory**

* Memories are reconstructed in many ways after events happen, which makes them prone to distortion.
* Memories can be distorted by **schema**, **source amnesia**, the **misinformation effect**, the **hindsight bias**, the **overconfidence effect**, and **confabulation**.

**The Structure of Language**

* **Language** is a system of symbols and rules used for meaningful communication.
* A language uses **symbols** and **syntax** and is meaningful and **generative**.
* Language is organized hierarchically from **phonemes** to **morphemes** to phrases and sentences.
* Children develop language in a set sequence of stages.

**Theories of Language Acquisition**

* Behaviorist **B. F. Skinner** strongly supported the idea that language depends largely on environment.
* Skinner believed that people acquire language through principles of conditioning.
* Critics argue the inadequacy of behaviorist explanations.
* Some cognitive neuroscientists have created **neural networks** that can acquire some aspects of language by encountering many examples of language. They think children may acquire language in the same way.
* **Noam Chomsky** is the main proponent of the importance of biological influences on language development.
* Chomsky proposed that human brains have a **language acquisition device** that allows children to acquire language easily.
* Some researchers believe that language is both biologically and environmentally determined.
* The **linguistic relativity hypothesis** states that language determines the way people think.
* Today, researchers believe language influences, rather than determines, thought.
* Two ways that people use language to influence thinking are **semantic slanting** and **name calling**.
* People master a new language better if they begin learning it in childhood.
* Nonhuman animals can learn some aspects of language.

**Language and Nonhuman Primates**

* Some researchers have tried to teach apes to use language.
* Apes can communicate, but researchers are divided on whether this communication can really be considered “learning language.”

**The Structure of Cognition**

* **Cognition** involves activities such as understanding, **problem solving**, **decision making**, and being creative.
* People use mental representations such as **concepts**, **prototypes**, and **cognitive schemas** when they think.

**Theories of Cognitive Development**

* **Jean Piaget** believed that children’s cognitive skills unfold naturally as they mature and explore their environment.
* **Lev Vygotsky** believed that children’s sociocultural environment plays an important role in cognitive development.
* Some researchers have shown that humans are born with some basic cognitive abilities.

**Problem-Solving**

* **Problem-solving** is the active effort people make to achieve a goal that is not easily attained.
* Three common types of problems involve **inducing structure**, **arranging**, and **transformation**.
* Some approaches to problem-solving are **trial and error**, **deductive** and **inductive reasoning**, use of **algorithms** and **heuristics**, **dialectical reasoning**, **creation of subgoals**, **use of similar problems**, and **changes in the way the problems are represented**.
* Researchers have identified many obstacles to effective problem-solving, such as **focus on irrelevant information**, **functional fixedness**, **mental set**, and **assumptions about unnecessary constraints**.

**Decision-Making**

* **Decision-making** involves weighing alternatives and choosing among them.
* **Additive strategies** and **elimination strategies** are ways of making decisions about preferences.
* Using **expected value**, **subjective utility**, the **availability heuristic**, and the **representativeness heuristic** are all ways of making risky decisions.
* Using the representativeness heuristic can make people susceptible to **biases**, such as the **tendency to ignore base rates** and the **gambler’s fallacy**.
* Using the availability heuristic can make people susceptible to **overestimating the improbable** or **underestimating the probable**.
* In an effort to minimize risk, people also make decision-making errors, such as the **overconfidence effect**, the **confirmation bias**, and **belief perseverance**.

**Creativity**

* **Creativity** is the ability to generate novel, useful ideas.
* Creativity is characterized by **divergent**, rather than **convergent**, thinking.
* Some characteristics of creative people are **expertise**, **nonconformity**, **curiosity**, **persistence**, and **intrinsic motivation**.
* People can best realize their creative potential if they are in environmental circumstances that promote creativity.

**Theories of Intelligence**

* **Intelligence** is the capacity to acquire and apply knowledge.
* Intelligence includes the ability to benefit from experience, act purposefully, solve problems, and adapt to new situations.
* **Charles Spearman** proposed a **general intelligence factor**, **g**, that underlies all intelligent behavior.
* **Howard Gardner** proposed that there are eight domains of intelligence.
* **Robert Sternberg** distinguished among three aspects of intelligence.
* **Emotional intelligence** helps people to perceive, express, understand, and regulate emotions.

**Intelligence Testing**

* The most commonly used individual tests of intelligence are the **Binet-Simon scale**, the **Stanford-Binet Scale**, and the **Wechsler Adult Intelligence Scale**.
* The Binet-Simon scale yielded scores in terms of **mental age**.
* The original Stanford-Binet test yielded scores in terms of **intelligence quotient,** or **IQ**.
* The Wechsler test yields scores based on a **normal distribution**.
* Although the term *IQ* is still used, current intelligence tests present scores based on a normal distribution.
* Group intelligence tests are often used in educational settings.
* Some researchers have suggested that there are biological indices of intelligence, such as **reaction time** and **perceptual speed**.
* Many psychologists believe that **cultural bias** affects intelligence tests.
* Intelligence tests are **standardized**.
* **Norms** provide information about how a score compares with other people’s scores.
* Intelligence tests are very reliable.
* Intelligence tests are reasonably valid measures of academic ability.
* Intelligence tests have both critics and advocates.

**The Influence of Heredity and Environment**

* There is dispute about how and how much heredity and environment affect intelligence.
* Evidence for hereditary influences come from **family studies**, **twin studies**, and **adoption studies**.
* **Heritability** estimates for intelligence vary depending on the method used for estimation.
* Evidence for environmental influences comes from **adoption studies**, **studies of environmental deprivation**, and the **Flynn effect**.
* There is probably a reaction range for IQ. **Reaction range** refers to limits set on IQ by heredity. Environment determines where IQ will lie within these limits.
* There is a discrepancy in IQ scores between whites and some minority groups.
* There are both hereditary and environmental explanations for this discrepancy.
* The higher IQ test scores and better school performance of Asian Americans may be due to cultural factors.

**Theories of Emotion**

* **Emotion** is a complex, subjective experience that is accompanied by biological and behavioral changes.
* **Charles Darwin** proposed that emotional expressions are hard-wired and that emotions evolved because they had **adaptive value**.
* Current evolutionary theorists believe that emotions are **innate**.
* The **James-Lange theory** states that people experience emotion because they perceive their bodies’ physiological responses to external events.
* The **Cannon-Bard theory** states that the experience of emotion and the accompanying physiological arousal happen at the same time.
* **Schachter and Singer’s** **two-factor theory** states that people’s experience of emotion depends on physiological arousal and the cognitive interpretation of that arousal.
* People’s experience of emotion depends on how they evaluate their environment.

**The Biological Bases of Emotion**

* Emotion involves activation of the brain and the **autonomic nervous system**.
* Information about emotion-evoking events moves along two pathways in the brain.
* The pathway that goes to the **amygdala** allows people to respond rapidly to events.
* The pathway that goes to the **cortex** allows people to appraise events more slowly.
* Researchers use **autonomic responses** to measure emotion.
* The **polygraph**, or lie detector, is a device that detects changes in autonomic arousal. It is often inaccurate in determining whether or not a person is lying.
* Different emotions differ in **pattern of brain activation**, **neurotransmitters released**, and **autonomic nervous system activity**.

**Expression of Emotion**

* People worldwide can identify six primary emotions: **happiness**, **sadness**, **anger**, **fear**, **surprise**, and **disgust**.
* The **facial-feedback hypothesis** states that the brain uses feedback from facial muscles to recognize emotions that are being experienced.
* The two genders express different amounts of emotion. This difference depends on gender roles, culture, and context.

**Emotion and Culture**

* People in different cultures can identify six basic emotions.
* There are **universal physiological indicators** of emotion.
* People in different cultures categorize emotions differently.
* Different cultures consider different emotions to be **primary**.
* The same situation may evoke different emotions in different cultures.
* Nonverbal expressions of emotion differ across cultures.
* **Cultural norms** determine how and when to display emotions that are not actually felt.

**Happiness**

* **Subjective well-being** depends more on attitudes toward circumstances than on the circumstances themselves.
* Circumstances such as **social support**, **marriage**, **job satisfaction**, and **religiosity** are positively correlated with happiness.
* Happiness tends to depend on **people’s expectations of life** and on **the way they compare themselves to others**.

**What Is Motivation?**

* **Motivation** is an internal process that makes a person move toward a goal.
* Motivation may be **extrinsic**, **intrinsic**, or both.
* **Drive reduction theories of motivation** suggest that people act in order to reduce needs and maintain a constant physiological state.
* **Abraham Maslow** proposed that there is a **hierarchy of needs** and that people pay attention to higher needs only when lower ones are satisfied.
* Needs may be **innate** or **learned**. Learned needs are determined by **values**. Both innate and learned needs are influenced by society and culture.

**Hunger**

* A genetically influenced **set point** may allow people to keep their weight constant.
* The **lateral hypothalamus** and the **ventromedial** and**paraventricular nuclei** of the hypothalamus play key roles in regulating hunger.
* The digestive system and hormones such as **insulin** and **leptin** also regulate hunger.
* Environmental influences on hunger include **availability of foods**,**preferences**, **habits**, **memory**, **stress**, and**cultural attitudes**.

**Sexual Drive**

* **Alfred Kinsey** was one of the first people to give a modern account of human sexuality.
* **William Masters** and **Virginia Johnson** described the human sexual response.
* The sexual response cycle has four phases: **excitement**,**plateau**, **orgasm**, and **resolution**.
* Testosterone increases sex drive, and sexual activity increases testosterone.
* Psychological influences on sex drive include **internal and external erotic stimuli**, **desires**, and **cultural context**.
* Researchers have found that there are some gender differences in sexual behavior and partner choice. Both evolutionary and sociocultural explanations can account for these differences.
* Estimates of the prevalence of homosexuality vary, and the causes of homosexuality remain unclear.
* Researchers have suggested that biological factors including **hormone levels**, **genes**, **prenatal environment**, and **brain anatomy** could influence sexual orientation.
* Psychologists have proposed several theories about how environment might influence homosexuality, but research has failed to support these theories.

**Achievement**

* Researchers often use the **thematic apperception test (TAT)** to measure the need for achievement.
* People who have a high **achievement motivation** tend to be persistent and hardworking. They are able to delay gratification to meet long-term goals, and they tend to choose careers that allow them to compete with others.
* People achieve the most when they have **high expectations of success**,**incentives that reward competence**, **control over tasks**, **opportunities to achieve**, and **effective goals**.
* Goals are most effective when they are **specific**, **moderately difficult**, and **framed in terms of what must be done** rather than what must be avoided.

**Personality Traits**

* **Personality** is the collection of characteristic thoughts, feelings, and behaviors that make up a person.
* Personality **traits** are consistent and long lasting, while **states** are temporary.
* The Greeks thought that four types of humors corresponded to personality types.
* Raymond Cattell used **factor analysis** to cluster traits into sixteen groups.
* Many psychologists believe that there are five basic traits.
* These **Big Five** traits include neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness.

**Psychodynamic Theories**

* **Psychodynamic theories** are based on **Sigmund Freud**’s theory of **psychoanalysis** and emphasize unconscious motives and the importance of childhood experiences in shaping personality.
* Freud believed that the mind has three levels of awareness: the **conscious**, the **preconscious**, and the **unconscious**.
* Information in the unconscious emerges in slips of the tongue, jokes, dreams, illness symptoms, and associations between ideas.
* The personality is made up of three components that are in constant conflict: the **id**, the **ego**, and the **superego**.
* The **id** contains biological impulses, is governed by the **pleasure principle**, and is characterized by **primary process thinking**.
* The **ego** manages the conflict between the id and reality. It is governed by the **reality principle** and is characterized by **secondary process thinking**.
* The **superego** is the moral component of the personality.
* Anxiety arises when the ego is unable to balance adequately the demands of the id and superego.
* People use **defense mechanisms** to protect themselves from anxiety.
* Freud proposed that children go through five stages of development, each characterized by sexual gratification from a particular part of the body.
* **Fixation** is an inability to progress normally from one developmental stage to another.
* The **Oedipus complex** is a critical phase of development that occurs in the phallic stage. It refers to a male child’s sexual desire for his mother and his hostility toward his father.
* According to **Carl Jung**’s analytical psychology, people have a **personal unconscious** and a **collective unconscious**. The latter contains universal memories of people’s common human past.
* According to **Alfred Adler**’s **individual psychology**, the main motivations for behavior are strivings for superiority.
* **Object relations** theorists believe that people are motivated most by attachments to people.
* Critics of psychodynamic theories argue that these theories are not falsifiable, that they generalize from a few patients to all people, and that they rely on retrospective accounts.

**Behaviorist Theories**

* Behaviorist explanations of personality focus on learning.
* **B. F. Skinner** believed that people’s personalities arise from **response tendencies** and that consequences shape the responses.
* **Albert Bandura** said that people learn responses by watching others. He believes that thinking and reasoning are important in learning.
* **Walter Mischel**’s research showed that people behave differently in different situations.
* Psychologists agree that personality is formed through a two-way interaction between personal characteristics and the environment. This interaction is called **reciprocal determinism**.
* Critics argue that behaviorists often generalize inappropriately from animal studies to humans and that they often underestimate biological factors.

**Humanistic Theories**

* **Humanistic** theories emphasize subjective viewpoints when studying personality. They have an optimistic view that focuses on humans’ rationality, consciousness, and freedom.
* **Abraham Maslow** studied the healthy personality and described the characteristics of the **self-actualizing** personality.
* **Carl Rogers**’s person-centered theory suggests that the **self-concept** is the most important feature of personality. Children’s self-concepts match reality if their parents give them unconditional love. Rogers said that people experience anxiety when reality threatens their self-concepts.
* Critics argue that humanistic theories and concepts are too naïvely optimistic, vague, difficult to test, and biased toward individualistic values.

**Biological Approaches**

* **Hans Eysenck** believes that genetics largely determine personality.
* Studies of **temperament** and **heritability** provide the most empirical evidence for genetic contributions to personality.
* Environment influences peer relationships and situations.
* Sharing a family environment does not lead to many similarities in personality.
* Evolutionary theorists explain personality in terms of its adaptive value.

**Culture and Personality**

* American culture promotes a view of the self as independent, while Asian cultures generally promote a view of the self as interdependent.
* Culture influences both aggressiveness in males and altruism.
* Cultural psychologists face the challenge of avoiding stereotypes and acknowledging universal features while studying differences among cultures.

**Assessing Personality**

* **Personality assessments** are used to help diagnose psychological disorders, counsel people about normal day-to-day problems, select personnel for organizations, and conduct research.
* **Objective personality tests** are usually **self-report inventories**. They include the **MMPI-2**, the **16PF**, and the **NEO Personality Inventory**.
* **Projective personality tests** require subjects to respond to ambiguous stimuli. They include the **Rorschach test** and the **Thematic Apperception Test**.
* **Assessment centers** allow psychologists to assess personality in specific situations.
* Each way of assessing personality has its advantages and disadvantages.

**What Is a Psychological Disorder?**

* Criteria for defining psychological disorders depend on whether cultural norms are violated, whether behavior is maladaptive or harmful, and whether there is distress.
* The **medical model** describes and explains psychological disorders as if they are diseases.
* The **vulnerability-stress model** states that disorders are caused by an interaction between biological and environmental factors.
* The **learning model** theorizes that psychological disorders result from the reinforcement of abnormal behavior.
* The **psychodynamic model** states that psychological disorders result from maladaptive defenses against unconscious conflicts.
* Psychologists use **objective** and **projective tests** to assess psychological disorders.

**Classification**

* **Classification** allows psychologists to describe disorders, predict outcomes, consider treatments, and study etiology.
* **Insanity** is a legal term, not a diagnostic label.
* Psychologists and psychiatrists use the ***DSM***to diagnose psychological disorders.
* The *DSM* uses a **multi-axial system of classification**.
* The *DSM* is a useful tool but has been criticized for several reasons.
* Most of the major disorders in the *DSM* are found worldwide.
* **Culture-bound syndromes** are limited to specific cultural contexts.

**Anxiety Disorders**

* A chronic, high level of anxiety may be a sign of an **anxiety disorder**.
* **Generalized anxiety disorder** involves persistent and excessive anxiety for at least six months.
* Having a **specific phobia** means becoming anxious when exposed to a specific circumstance.
* **Social phobia** is characterized by anxiety in social or performance situations.
* A person with **panic disorder** experiences recurrent, unexpected panic attacks.
* **Agoraphobia** involves anxiety about having panic attacks in difficult or embarrassing situations.
* **Obsessive-compulsive disorder** entails **obsessions**, **compulsions**, or both.
* **Post–traumatic stress disorder** is a set of psychological and physiological responses to a highly traumatic event.
* Biological factors implicated in the onset of anxiety disorders include **genes**, **different sensitivity to anxiety**, **the neurotransmitters GABA and serotonin**, and **brain damage**.
* Conditioning and learning may contribute to the development of phobias.
* Some styles of thinking may make people more susceptible to anxiety disorders.
* **Neuroticism** is associated with anxiety disorders.

**Mood Disorders**

* **Mood disorders** are characterized by marked disturbances in emotional state, which cause physical symptoms and affect thinking, social relationships, and behavior.
* Mood disorders may be **unipolar** or **bipolar**.
* People with **dysthymic disorder** have depressed mood for at least two years.
* **Major depressive disorder** involves at least one period with significant depressive symptoms.
* **Bipolar disorders** involve at least one period with manic symptoms and usually depressive periods as well.
* Biological influences on mood disorders include **genes**, **the neurotransmitters norepinephrine and serotonin**, and **brain abnormalities**.
* There is a two-way relationship between negative thinking and depression.
* Cognitive characteristics of depressed people include **learned helplessness**; a **pessimistic worldview**; **hopelessness**; a **tendency to make internal, stable, global attributions**; and a **tendency to ruminate**.
* There is a two-way relationship between social support and depression.
* **Depression** may be related to experiences of loss.
* The onset and course of mood disorders may be influenced by stress.

**Eating Disorders**

* **Eating disorders** are characterized by problematic eating patterns, concerns about body weight, and inappropriate efforts to control weight.
* **Anorexia nervosa** entails very low body weight, fear of gaining weight, and distorted body image.
* **Bulimia nervosa** involves binge eating and unhealthy efforts to control body weight.
* Some people may have a genetic vulnerability to eating disorders.
* Eating disorders may be associated with particular personality traits.
* Cultural factors strongly influence the onset of eating disorders.
* Lacking autonomy in the family and having an overly weight-conscious mother may influence the onset of eating disorders.
* People with eating disorders tend to have certain distortions of thinking.
* The onset of anorexia nervosa may be associated with stressful events.

**Somatoform Disorders**

* **Somatoform disorders** are characterized by real physical symptoms that cannot be fully explained by a medical condition, the effects of a drug, or another mental disorder.
* A person with **somatization disorder** has many different, recurrent physical symptoms.
* **Conversion disorder** involves symptoms that affect voluntary motor functioning or sensory functioning.
* People with **hypochondriasis** constantly fear that they may have a serious disease.
* People with **histrionic personality** traits may be more likely to develop somatoform disorders.
* Several cognitive factors may contribute to somatoform disorders.
* People with somatoform disorders may learn to adopt a sick role.

**Substance-Related Disorders**

* Many substance-related disorders are described in the *DSM*.
* **Substance abuse** is a maladaptive pattern of drug use that results in repeated, negative legal, social, occupational, or academic consequences.
* **Substance dependence** involves continuing to use a drug despite persistent harmful physical or psychological consequences.
* The **disease model of addiction** holds that addiction is a disease that must be treated medically.
* The **learning model of addiction** holds that addiction is a way of coping with stress.
* Genes may produce a predisposition to substance dependence.
* Several lines of evidence suggest that environmental factors play a key role in substance dependence.

**Schizophrenia**

* **Schizophrenia** is a psychotic disorder that includes **positive** and **negative** **symptoms**. There are several subtypes of schizophrenia.
* The **paranoid type** is characterized by marked **delusions** or **hallucinations** and relatively normal cognitive and emotional functioning.
* The **disorganized type** involves disorganized behavior, disorganized speech, and emotional flatness or inappropriateness.
* The **catatonic type** is characterized by unnatural movement or speech patterns.
* A **diagnosis** of **undifferentiated type** applies if diagnostic criteria are not met for any of the above three subtypes.
* Research suggests that **genes**, **neurotransmitters**, and **brain abnormalities** are involved in the onset of schizophrenia.
* Stress may help to induce schizophrenia in people who are already biologically vulnerable to the disorder.

**Dissociative Disorders**

* **Dissociative disorders** are characterized by disturbances in consciousness, memory, identity, and perception.
* **Dissociative fugue** involves sudden and unexpected travel away from home, failure to remember the past, and confusion about identity.
* People with **dissociative identity disorder** fail to remember important personal information and have two or more identities or personality states that control behavior.
* Dissociative identity disorder is a controversial diagnosis. Psychologists disagree about why its prevalence has risen since the 1980s.
* Severe stress may play a role in the onset of dissociative disorders.

**Personality Disorders**

* **Personality disorders** are stable patterns of experience and behavior that differ noticeably from patterns that are considered normal by a person’s culture.
* People with **schizoid personality disorder** are socially withdrawn and have restricted expression of emotions.
* **Borderline personality disorder** involves impulsive behavior and unstable relationships, emotions, and self-image.
* **Histrionic personality disorder** is characterized by attention-seeking behavior and shallow emotions.
* People with **narcissistic personality disorder** have an exaggerated sense of importance, a strong desire to be admired, and a lack of empathy.
* **Avoidant personality disorder** involves social withdrawal, low self-esteem, and extreme sensitivity to being evaluated negatively.
* **Antisocial personality disorder** begins at age fifteen and includes a lack of respect for other people’s rights, feelings, and needs.
* **Abnormalities in physiological arousal**, a **genetically inherited inability to control impulses**, and **brain damage** may be involved in the development of antisocial personality disorder.
* Environmental influences are also likely to influence the development of antisocial personality disorder.

**Types of Treatment**

* Treatment for psychological disorders can be categorized into **insight therapies**, **behavior therapies**, and **biomedical therapies**.
* All psychotherapies offer **hope**, **new perspectives on a problem**, and an **empathic relationship with a therapist**.
* Many types of professionals provide psychological treatment.

**Psychotherapy**

* All psychodynamic therapies are based on **Sigmund Freud**’s psychoanalytic treatment.
* **Psychoanalytic treatment** focuses on uncovering unconscious motives, conflicts, and defenses.
* Three techniques used in psychoanalysis are **free association**, **dream analysis**, and **interpretation**.
* The concepts of **transference** and **resistance** are important features of psychoanalysis and current psychodynamic therapies.
* **Cognitive therapies** attempt to identify and change maladaptive thinking patterns.
* Cognitive therapists believe that depression arises from **errors in thinking**.
* Cognitive therapists help clients to identify and change **automatic thoughts** and **assumptions about the world**.
* **Albert Ellis**’s **rational-emotive therapy** is based on the idea that people’s feelings are influenced by their catastrophic thoughts and beliefs about events.
* Behavior therapists focus on addressing symptoms rather than the underlying causes. They use learning principles to modify behavior.
* **Systematic desensitization** is a type of **exposure therapy** that uses counterconditioning to decrease anxiety. It is effective at treating phobias.
* **Flooding** is an exposure therapy in which patients are suddenly exposed to a feared object or situation.
* **EMDR** is an exposure treatment for post-traumatic stress disorder and panic attacks. The eye movements do not appear to add to the effectiveness of the treatment.
* In **aversion therapy**, a stimulus that evokes an unpleasant response is paired with a stimulus that evokes a maladaptive behavior.
* **Social skills training** for improving relationships with people uses techniques such as modeling, behavioral rehearsal, and shaping.
* A **token economy** is a behavior modification program based on operant conditioning principles.
* **Humanistic therapists** try to help people accept themselves and free themselves from unnecessary limitations.
* In **client-centered therapy**, therapists provide a supportive emotional environment that helps clients enhance self-acceptance and personal growth.
* Humanistic therapists believe that it is important to be genuine and empathic and provide **unconditional positive regard**.

**Family Therapies**

* In **family therapy**, a therapist sees two or more members of a family at the same time. Family therapies are based on the idea that people live as interconnected members of families.
* In **couples therapy**, therapists help couples to identify and resolve conflicts.

**Group Therapies**

* In **group therapy**, a therapist meets with several people at once.
* Groups may be homogeneous or heterogeneous.
* In group therapy, the therapist **screens participants**, **promotes a supportive environment**, **sets goals**, and **protects clients from harm**.
* Group members provide each other with acceptance, support, and honest feedback.
* **Self-help groups** are similar to therapy groups, except that they do not have a therapist.

**Biomedical Therapies**

* In **drug therapy**, psychological disorders are treated with medications. These medications are often effective but have many side effects.
* **Antianxiety drugs** include **benzodiazepines**, which reduce central nervous system activity.
* **Antidepressants** include **MAOIs**, **tricyclics**, and **SSRIs**. These drugs affect the levels of the neurotransmitters serotonin and epinephrine.
* **Antipsychotic drugs** are used to treat schizophrenia and other psychotic drugs. They reduce dopamine activity.
* Unlike the older antipsychotic drugs, the newer **atypical antipsychotic drugs** help treat the negative symptoms of schizophrenia. These drugs reduce serotonin activity as well as dopamine.
* **Lithium** is used to treat bipolar disorders.
* Drug therapies have been criticized for several reasons.
* **ECT** is used to treat severe depression. It is a controversial procedure.
* **Lobotomies** are performed only rarely to treat psychological disorders, but **cingulotomies** are sometimes done.
* **TMS** is a recently developed noninvasive procedure for treating severe depression.

**Effectiveness of Treatment**

* **Client testimonials** and **providers’ perceptions** are not reliable ways of assessing the effectiveness of treatments.
* Empirical research shows that psychotherapy is effective for many problems.
* All approaches to therapy are equally effective, but some approaches are more effective than others for specific problems.
* Effectiveness does not depend on the therapist’s level of training, experience, or education but does depend on therapist skill. Effective therapists are **empathic**, **genuine**, and **warm**.
* Clients who benefit from therapy tend to be people who are motivated, who are active problem solvers, and who have family support.
* Under some conditions, therapy can be harmful to clients, such as if the therapist acts unethically or coerces the client in any way.

**Seeking Treatment**

* People who seek psychotherapy are more likely **to be women**, **to be more educated**, and **to have medical insurance**.
* People may not seek treatment because of **cost concerns**, **lack of insurance**, or **fear of stigma**.
* Cultural and ethnic minorities often face barriers to receiving psychotherapy.

**Treatment Trends**

* In **managed care systems**, consumers pay lower fees to providers and money is not spent on unnecessary medical services. However, critics argue that managed care compromises quality of care in many ways.
* There has been a trend toward **deinstitutionalization** over the past several decades.
* Deinstitutionalization has both advantages and disadvantages

**Impressions**

* People form impressions about others through the process of **person perception**.
* People’s physical appearance strongly influences the way they are perceived by others.
* People are particularly influenced by **physical attractiveness** and **baby-faced features**.
* **Social schemas** affect how people perceive events and other people.

**Stereotypes and Prejudice**

* **Stereotypes** are beliefs about people based on their membership in a particular group.
* Stereotypes tend to be difficult to change.
* Stereotyping has some important functions, but it can also distort reality in dangerous ways.
* Evolutionary psychologists believe that people evolved the tendency to stereotype because it gave their ancestors an adaptive advantage.
* A **prejudice** is a negative belief or feeling about a particular group of individuals.
* Prejudice is pervasive because it serves many social and psychological functions.
* Researchers find it difficult to measure prejudice. They often measure **implicit** rather than **explicit prejudice**.
* People who identify strongly with their **ingroup** are more likely to be prejudiced against people in **outgroups**.
* Research shows that there are effective ways to reduce prejudice.

**Attribution**

* **Attributions** are inferences people make about the causes of events and behavior.
* Attributions can be classified along two dimensions: **internal vs. external** and **stable vs. unstable**.
* People often make incorrect attributions because of the **fundamental attribution error**, the **self-serving bias**, and the **just world hypothesis**.
* Cultural values and norms affect the way people make attributions.

**Attitudes**

* **Attitudes** are evaluations people make about objects, ideas, events, or other people. They can be **explicit** or **implicit** and can include beliefs, emotions, and behavior.
* Attitudes vary according to **strength**, **accessibility**, and **ambivalence**.
* Attitudes do not always affect behavior.
* The **foot-in-the-door phenomenon** and the **prison study** show that behavior can affect attitudes.
* Theories that account for attitude change are **learning theory**, **dissonance theory**, and the **elaboration likelihood model**.

**Social Influence**

* Some common social influence strategies are the **foot-in-the-door technique**, the **lowball technique**, **manipulation of the reciprocity norm**, and **feigning scarcity**.
* Persuasion involves a **source**, a **receiver**, a **message**, and a **channel**.
* Credible, likable sources are more likely to be persuasive.
* Many features of the source, receiver, and message influence persuasion.
* **Coercive persuasion** involves limiting freedom to choose and preventing clear reasoning.

**Attraction**

* **Interpersonal attraction** refers to positive feelings about another person.
* **Physical attractiveness**, **proximity**, **similarity**, and **reciprocity** influence attraction.
* **Romantic love** includes **passionate** and **compassionate love**.
* **Compassionate love** includes **intimacy** and **commitment**.
* Infant attachment styles tend to be reproduced in adult relationships.
* There are both similarities and differences among cultures in romantic attraction.
* Evolutionary psychologists speculate that the tendency to be attracted to physically attractive people is adaptive.

**Obedience and Authority**

* **Obedience** is compliance with commands given by an authority figure.
* **Stanley Milgram**’s obedience study showed that people have a strong tendency to comply with authority figures.
* The degree of obedience depends on many situational factors.
* People sometimes carry obedience to extremes.

**Groups**

* A **group** is a social unit composed of two or more people who interact and depend on each other in some way.
* Groups tend to have **distinct norms**, **roles**, **communication structures**, and **power structures**.
* **Conformity** is the process of giving in to real or imagined pressure from a group.
* **Solomon Asch** did a famous study that showed that people often conform and that social roles influence behavior.
* Factors that influence conformity include **group size and unanimity**, **level of competence**, **liking for the group**, and **group observation of the behavior**.
* People conform because of **normative social influence**, because of **informational social influence**, because **they want to gain rewards**, and because **they identify with the group**.
* **Insufficient coordination** and **social loafing** contribute to lowered productivity in groups.
* **Social facilitation** may occur in some group situations.
* **Groupthink**, **group polarization**, and **minority influence** affect decision-making in groups.
* **Deindividuation** sometimes occurs in large, anonymous, arousing groups.

**Helping Behavior**

* People are less likely to offer help in the presence of other people.
* Bystanders are more likely to help people in some circumstances than others.
* Explanations for helping behavior include **social exchange theory**, the **social responsibility norm**, and the **reciprocity norm**.
* A **social trap** is a situation in which acting in one’s own self-interest can harm both the actor and others.