

- • Psychology 200 Chapter One
- Dr. Dennis Humphrey
- Psychology
- The study of mental processes and behavior
- Science: A systematic approach to gathering knowledge through careful observation and experimentation
- Pseudoscience: An approach to explaining and predicting behavior without scientific evidence
- Statistical Significance: 90% certainty in the results versus the probability of chance.
- Introduction
- As scientists, psychology can conduct two types of research: basic and applied.
- Basic research focuses on validating or advancing current research and Applied research focuses on applications that are not yet developed and/or established.
- Describe: the systematic examination of observable behavior

Explain: Organize and make sense of research findings

Predict: Determine possible behaviors and outcomes

Change: the desire to change or control behavior

- **Nature versus Nurture**
- Nature is the genetically conditioned, innate response to the cultural, social, and environmental factors

- Nurture is the learned response, reactions to cultural, social, and environmental factors

# • Structuralism and Functionalism

- Wilhelm Wundt – The Father of Psychology
- Introspection: Internal review of behaviors, emotions, thoughts
- Structuralism: Subjective experiences and structures of the brain
- Functionalism: Objective experiences based on observed behaviors
- Perspectives of Psychology
- Freud
- Psychoanalytic
- Jung
- Psychodynamic
- Pavlov / Skinner
- Behavioral
- Rogers / Maslow
- Humanistic
- Perspectives of Psychology
- Piaget / Erikson
- Cognitive
- Darwin
- Evolutionary
- Descartes
- Biological
- Vygotsky
- Sociocultural
- The Scientific Method
- Research Methods

- Observation
- Case study
- Survey method
- Archival research
  - Correlation
  - Relationship
  - Correlation is NOT causation
  - The variables under observation or study simply have similar movements relative to each other without one variable 'causing' the other to react
  - Occurs over a period of time
  - Is Positive, Negative, or Zero
  
- coefficients
  - The strength of the relationship between two or more variables
  - Determines the amount of movement in either variable
  - Cannot exceed a plus or minus 1 (absolute values are used)
- Experiments
- Causal
- Two or more variables are compared to each other

- One or more of the variables will cause the possibility of a response or reaction (Independent Variable) in another variable (Dependent Variable)
  - Is a True Experiment or a Quasi Experiment
  - True Experiments use Random Assignment
  - Quasi Experiments use Selective Assignment
- 
- Elements
  - Control Group
  - Experimental Group
  - Placebo
  - Extraneous versus Confounding Variables
  - Single Blind Study
  - Double Blind Study
  - Reliability
  - Validity
  - The Neuron
  - Holding It Together: Glial Cells
  - Glial cells serve as the “glue” of the nervous system, providing cohesion and support for the neurons. Some classes of glial cells are as follows:
    - Microglia
    - Astrocytes
    - Oligodendrocytes
    - Schwann cells

*Describe the function of the glial cells after Brandon’s injury.*

- Communication Within Neurons (Part 3)

- **Resting Potential**

- It represents the *electrical potential* of a neuron “at rest.”
- Negative protein ions are only on the inside of the cell.
- Concentration of sodium ions (+) outside the cell is much greater than that inside.
- -70 millivolts (mV)

- **Action Potential**

- If the neuron is stimulated by neighboring cells, channels in its membrane begin to open up, starting at the dendrites.
- An influx of sodium ions changes the voltage **from -70 mV to -55 mV** (*threshold potential*).
- The voltage there rises rapidly, increasing from -55 mV to +30 mV.

- **Communication Within Neurons (Part 5)**

- **Moving down the axon**

- The action potential occurring in one axon segment causes a voltage change in the next, initiating an entirely new action potential there.
- This sequential action travels along the axon like a wave.
- *What direction does the action potential move? (HINT: from what structure to what structure?)*

- **Neurotransmitters and Behavior (Part 2)**

- **Acetylcholine**

- Relays messages from neurons to muscles, enabling movement
- Too much = spasms; too little = paralysis
- Low levels in the brain have been linked to Alzheimer’s disease

- **Glutamate**

- Excitatory neurotransmitter

- Plays a central role in learning and memory
- Too much = strokes; too little = symptoms of schizophrenia
- **Neurotransmitters and Behavior (Part 4)**
- **Serotonin**
  - It helps control appetite, aggression, and mood, and regulates sleep and breathing.
  - Abnormally low activity is thought to drive depression.
  - SSRIs help boost the effects of serotonin.
- **Endorphins**
  - A group of naturally produced opioids
  - Released in response to pain and block pain receptor sites
  - Also released with brisk exercise
- **Neurotransmitters and Behavior (Part 5)**
- **Dopamine**
  - Plays a key role in attention, learning through reinforcement, and regulating body movements
  - Implicated in the abuse of certain substances, including cocaine and amphetamines
  - Parkinson's disease is linked to a deterioration of neurons that produce dopamine.
- **Overview of the Nervous System**
- **Central Nervous System**
  - Major component of the human nervous system that includes the brain and spinal cord
- **Peripheral Nervous System**
  - The part of the nervous system that connects the central nervous system to the rest of the body
- **Types of Neurons**
- **Sensory Neurons**
  - Receive information about the environment from the sensory systems and convey it to the brain for processing
- **Motor Neurons**
  - Carry information from CNS to produce movement; provide mechanism regulated by spinal cord and the brain

- **Interneurons**
  - Reside in the brain and spinal cord; act as bridges connecting sensory and motor neurons
- **Peripheral Nervous System**
- **The peripheral nervous system (PNS) includes all the neurons that are not in the central nervous system.**
  - Neurons are bundled together in collections called nerves.
  - Inform the CNS about the external and internal environment
- **Two functional branches**
  - Somatic nervous system
  - Autonomic nervous system
- **The Sympathetic and Parasympathetic Nervous Systems**
- **The Endocrine System: An Overview**
- **Roles of the Right Hemisphere**
- **The right hemisphere is more proficient in**
  - identifying mirror images and spatial relationships
  - mentally rotating images
  - recognizing faces
  - processing emotions
  - directing attention
- **Prosopagnosia**
  - “Face blindness”
  - Abnormalities in the right fusiform gyrus
- **Stem Cells and Neurogenesis**
- **The Cortex (Part 2)**

- The Cortex Overlying Each Hemisphere Is Separated into Different Sections or Lobes.
  - **Frontal lobe:** organizes information among the other lobes of the brain and is responsible for cognitive functions, such as thinking, perception, and impulse control
  - **Parietal lobe:** receives and processes sensory information, such as touch, pressure, temperature, and spatial orientation
  - **Occipital lobe:** processes visual information
  - **Temporal lobe:** processes auditory stimuli and language

## • The Temporal Lobes and the Auditory Cortex

- Below the parietal lobes, on the sides of your head, are the temporal lobes, which:
  - process auditory stimuli,
  - recognize visual objects, especially faces, and
  - play a key role in language comprehension and memory.
- The *auditory cortex* receives information from the ears and allows us to “hear” sounds.

## • Drama Central: The Limbic System

- Collection of structures that regulates emotions and basic drives like hunger, and aids in the creation of memories
  - Thalamus

- Hypothalamus
- Amygdala
- Hippocampus

## • The Cerebellum

- Cerebellum
  - A structure located behind the brainstem that is responsible for muscle coordination and balance
  - Latin for “little brain”
  - *What would you expect to see if someone had damage to the cerebellum?*
- A Complex Communication Network
- **Nervous system**
  - A communication network that conveys messages throughout the body, using electrical and chemical processes
  - Consists of brain, spinal cord, and nerves
- **Neurons**
  - These are specialized cells of the nervous system that transmit electrical and chemical signals in the body.
  - Brain consists of approximately 100 billion neurons with an estimated 100 trillion links.

## • The Brainstem

- Brainstem
  - The brain’s ancient core which consists of a stalk-like trio of structures
- Midbrain: the part of the brainstem involved in levels of arousal; responsible for generating movement patterns in response to sensory input
  - Reticular formation
    - somatic motor control, cardiovascular control, pain modulation, sleep and consciousness, and habituation
- Hindbrain: areas of the brain responsible for fundamental life-sustaining processes
  - Pons

- conduct signals from the brain down to the cerebellum and medulla, and tracts that carry the sensory signals up into the thalamus
- **Medulla**
  - contains the cardiac, respiratory, vomiting and vasomotor centers, and therefore deals with the autonomic functions of breathing, heart rate and blood pressure as well as the sleep-wake cycle
- Forebrain: largest part of the brain; includes the cerebrum and the limbic system.
- **From Bumps to Brain Scans (Part I)**
- **Neuroscience**
  - Involves the study of the brain and nervous system
  - Draws upon multiple disciplines, including psychology
- **Biological psychology**
  - A subfield of psychology
  - Focuses on how the brain and other biological systems influence human behavior

Why is the brain considered the “last frontier of scientific discovery”?

- Can You Identify the Structure of a Typical Neuron?
  - Cell body
  - Dendrites
  - Axon
  - Terminal buds
  - Nodes of Ranvier
  - Myelin sheath
  - Synapse
- 
- **Communication Within Neurons (Part I)**
  - **Processes Inside the Neuron**

- The neuron is surrounded by and filled with positive and negative electrically charged ions.
- The difference in sum of the positive and negative charges determines the overall charge.
- Two processes direct ion flow into and out of the cell:
  - **Diffusion**
  - **Electrostatic pressure**
- The summation of negatives and positives produces the voltage neuron difference.
- **The Resting Potential and Action Potential Close-Up**
- **Communication Within Neurons (Part 6)**
- **Excitatory Signals**
  - If enough sending neurons signal the receiving neuron to pass along the message, their combined signal becomes *excitatory* and the neuron fires.
- **Inhibitory Signals**
  - Inhibit neuron from releasing a signal through the axon
- **All-or-None**
  - A neuron either fires or does not fire.
  - The neuron conveys stimulus strength by firing more often and delivering its message to more neurons.
- **Communication Between Neurons**
- **Neurotransmitters**
  - Chemical messengers that neurons use to communicate at the synapse
- **Receptor Sites**
  - Location where neurotransmitters attach on the receiving side of the synaptic gap
  - The neurotransmitter must fit a corresponding receptor site to convey its message, similar to a lock and key
- **Reuptake**
  - Occurs when neurotransmitters are reabsorbed by the sending axon terminal
- **Neurotransmitters and Behavior (Part 3)**
- **GABA**

- Inhibitory neurotransmitter
- Plays a role in controlling sleep and wakefulness
- **Norepinephrine**
  - It plays a variety of roles, one of which is to prepare the body for stress.
  - In the brain, norepinephrine is involved in regulating arousal and sleep.
  - High levels could lead to overarousal and hypervigilance.
- **Neurotransmitters and Behavior (Part 4)**
- **Cortisol**
  - Increases sugar (glucose), in the bloodstream, enhances the brain's use of glucose and increases the availability of substances in the body that repair tissues.
  - Also slows functions that would be nonessential or harmful in a fight-or-flight situation.
- **Relationships: Your Romantic Brain**
- **What's Love Got to Do with...Dopamine?**
  - Areas of the brain where dopamine is active, including the ventral tegmental area (VTA) and parts of the caudate nucleus, become excited when newly in-love individuals look at pictures of their partners (Aron et al., 2005).
- **Oxytocin**
  - Involved in the early stages of romantic love and social bonding
  - Behaves as both a neurotransmitter and a hormone
- **The Spinal Cord and Simple Reflexes**
- **Spinal Cord**
  - The bundle of neurons that allows communication between the brain and the peripheral nervous system
  - For Brandon, the paralysis could have impacted his entire body if the bullet pierced his spinal cord.
  - If this pathway is blocked, commands from the brain cannot reach the muscles. Similarly, the skin and other parts of the body cannot communicate sensory information to the brain.
- **The Reflex Arc**
- *Have you ever touched a hot pan?*
- Sensory neurons → interneurons □ motor neurons

- The brain is not involved initially
- **Reflex arc**
  - An automatic response to a sensory stimulus, such as the “knee-jerk” reaction
  - *Why do you think the reflex arc evolved? In other words, how might this reflex promote human survival over evolutionary time?*
- **Autonomic Nervous System**
- The branch of the peripheral nervous system that controls involuntary processes within the body
  - *What involuntary processes are your autonomic nervous system currently governing?*
- Two divisions that help us respond to and recover from stressful or crisis situations
  - Sympathetic nervous system
  - Parasympathetic nervous system
- **The Two Hemispheres**
- **Cerebrum**
  - The largest area of the brain
  - Has two distinct hemispheres
- **Corpus Callosum**
  - The thick band of nerve fibers connecting the right and left cerebral hemispheres
  - Allows the left and right sides of the brain to communicate and work together to process information
- Generally speaking, the right hemisphere controls the left side of the body, and the left hemisphere controls the right.

- **The effect of split-brain personality**

- Roles of the Left Hemisphere

- Neuroplasticity

- The Cortex (Part I)

- *If you were Christina's surgeon performing her hemispherectomy, what would you see as you started the surgery?*

- Meninges
- Cerebrum
- Cerebral cortex

- The wrinkled outermost layer of the cerebrum, responsible for higher mental functions, such as decision making, language, and processing visual information
- *Why is the cortex wrinkled?*

- Lobes of the Brain

- Penfield and the Somatosensory Cortex

- A band of tissue running parallel to the motor cortex that receives and integrates sensory information from all over the body

- Penfield, the neurosurgeon who created the homunculus for the motor cortex, mapped the somatosensory cortex in the same way.

# • The Occipital Lobes and the Primary Visual Cortex

- Visual information is initially processed in the occipital lobes, in the lower back of the head.
  - The experience of “seeing stars”
- The optic nerve connects to the primary visual cortex, where visual information is received, interpreted, and processed.
- *What might we expect if this area of the brain is damaged?*

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- Sensation and Perception
- Chapter 3
- Sensation Versus Perception (Part I)

- **Sensation**
- The process by which receptors in our sensory organs (the eyes, ears, nose, mouth, skin, and other tissues) receive and detect stimuli
- Example: hearing a loud, shrill tone
- **Perception**
- The process through which information about these stimuli is organized, interpreted, and transformed into something meaningful
- Example: recognizing the tone as the warning sound of a fire alarm
- **Transduction**
- Sensation begins when your sensory systems receive input from the internal and external environment.
  - This input must be converted to a form that is understood by the brain.
- **Transduction** is the process of transforming stimuli into the electrical and chemical signals of neurons.
  - Neural signals are processed by the central nervous system.
  - For sensations to be useful, we must assign meaning to them.
- **Absolute and Difference Thresholds**
- **Absolute Threshold**
- The weakest stimuli that can be detected 50% of the time

- **Difference Threshold**
  - The minimum difference between two stimuli that can be noticed 50% of the time
  - *Could you tell the difference between 49 and 45 grams?*
- Sensory Adaptation
- The process through which sensory receptors become less sensitive to constant stimuli

## Examples

*In what way(s) is sensory adaptation beneficial?*

- Vision (Part I)
- Features of Light
  - Light is an electromagnetic wave.
  - Light that is visible to humans falls along a spectrum, or range, of electromagnetic energy.
  - **Wavelength:** the distance between wave peaks (or troughs)
- Hearing (Part I)
- **Audition** is our sense of hearing.
- **Sound waves** are alternating zones of high and low pressure moving through the environment.
- Sounds are differentiated by three main qualities
  - Loudness: measured in decibels (dB)
  - Pitch: how high or low a sound is
    - Based on wave frequency
    - Measured in Hertz (Hz)
  - Timbre: additional frequencies and the way they fluctuate across time
- Smell (Part I)

- **Smell: Nosing Around**
  - **Olfaction** is our sense of smell.
  - Smell is a chemical sense, dependent on odor molecules in the air.
  - Odor molecules bind to receptor sites on the olfactory epithelium, triggering an action potential.
- *In the rare condition of anosmia, people are unable to perceive odors. What would life be like if you were unable to smell?*
- **Taste (Part I)**
- **Gustation** is our sense of taste.
- *Think back to the last time your nose was clogged from a really bad cold. How did your meals taste?*
- Receptors in the mouth are sensitive to five basic tastes: sweet, salty, sour, bitter, and umami.
- Taste buds located in the papillae are made up of receptor cells that communicate signals to the brain when stimulated by chemicals from food and other substances.
- **Touch (Part I)**
- **Epidermis**
  - Skin's outermost layer
  - Body's biggest organ
  - Functions of the epidermis
  - Receptors
    - **Thermoreceptors**
    - **Pacinian corpuscles**
    - **Meissner's corpuscles**
- **Fast and Slow Pain Pathways**
- **Kinesthesia**

- Sensory system that conveys information about body position and movement
- Knowledge of body location and orientation is made possible by specialized nerve endings called **proprioceptors**.
  - Primarily located in the muscles and joints
  - *What behavior would you expect to see if our proprioceptors were damaged?*
- Perception (Part 2)
- Perception Deception
  - **Illusion:** A perception that is inconsistent with sensory data
  - Guided by top-down processing, the brain's perceptual systems are prone to errors and distortions.
  - Example: Muller-Lyer Illusion
- Depth Perception (Part I)
- Depth Perception
  - The ability to perceive three-dimensional objects and judge distances
  - Gibson and Walk's Visual Cliff
    - A baby appears distressed when he encounters the visual cliff, a supportive glass surface positioned over a drop-off, or "cliff." Most babies will not proceed, even when coaxed by a trusted caregiver.
    - This finding suggests that depth perception is already in place by the time a child is crawling.
- Sensation Versus Perception (Part 2)
- Bottom-Up Processing

- Taking basic information about incoming sensory stimuli and processing it for further interpretation
- Machines excel at this type of processing.
- Top-Down Processing
  - Drawing on past experiences and knowledge to understand and interpret sensory information
  - Humans excel at this type of processing.
- Sensation: It Just Depends
- There is variability in humans' sensory abilities.
  - Some of this variability is due to individual differences.
  - Some of this variability is due to situational factors.
  - *What situational factors might impede your sensory abilities?*
- Perceptual Set
- The tendency to perceive stimuli in a specific manner based on past experiences and expectations
- *Look at the green square. What do you see?*
- Evident in our sense of hearing as well (for example, "sects" versus "sex")
- Perceptual set can be problematic when it leads to discriminatory behavior.
- Consciousness
- Chapter 4
- What Is Consciousness?

- The state of being aware of oneself, one's thoughts, and/or the environment
- Can be altered by drugs to ease pain and anxiety
- Think of consciousness as a spectrum
  - Includes various levels of conscious awareness
  - Implies one can be asleep and still be aware
- Are animals conscious?
- Studying Consciousness (Part 1)
- Early Psychologists
  - *Wilhelm Wundt* and *Edward Titchener*: founded psychology as a science based on exploring consciousness and its contents
    - **Structuralism**
  - *William James*: proposed consciousness as a “stream” that provides a sense of day-to-day continuity
    - **Functionalism**
  - *John B. Watson* and *B.F. Skinner*: insisted that psychology should only study observable behavior
- Studying Consciousness (Part 2)
- Cognitive psychology
  - Scientific study of conscious and unconscious mental processes such as thinking, problem solving, and language
- Optogenetics (used by Dr. Chander)
  - Technology used to search for neurons that may act as switches for different states of consciousness
  - Can activate or deactivate neurons or groups of neurons over milliseconds to view effect on animal behavior

*Despite advances in technology, our understanding of consciousness remains limited. What are some challenges to studying consciousness?*

- Where Does Consciousness Dwell?
- The Nature of Consciousness (Part 1)

- **Automatic Processing**
  - Some processing of sensory information occurs *automatically* without effort, awareness, or control.
  - Without automatic processing, we'd be overwhelmed with data.
  - Can also refer to the involuntary cognitive activity accompanying some behaviors
    - **Example: walking and texting**
    - **The myth of multitasking**
- **The Nature of Consciousness (Part 2)**
- **Selective Attention**
  - The ability to focus awareness on a small segment of information that is available through our sensory systems
  - • With effort and awareness, we choose where and when to direct our attention
    - **Example: cocktail party effect**
    - Influenced by personality and emotions
- **The Nature of Consciousness (Part 3)**
- **Inattentional blindness: “looking without seeing”**
- **Neisser (1979) first illustrated this phenomenon by using the umbrella task.**
- **The Nature of Consciousness (Part 4)**
- **Levels of consciousness: wakefulness, sleepiness, drug-induced states, dreaming, hypnotic states, and meditative states**
  - One way to define these levels of consciousness is to determine how much control you have over your awareness.
  - Psychologists distinguish between
    - **Waking consciousness**
    - **Altered states of consciousness**
- **Sleep (Part I)**

- Virtually all animals show some form of sleep or a sleeplike state.
  - Bats and opossums sleep 18 to 20 hours a day.
  - Elephants and giraffes get by on 3 or 4 hours.
  - Human sleep needs vary.
    - **Adults are recommended to get between 7 and 9 hours per night.**
- Sleep (Part 2)
- Circadian Rhythm: a 24-hour cycle of physiological and behavioral functioning
  - *What are some examples of circadian rhythms in the human body?*
  - The desire for sleep is greatest in the early morning between 2 a.m. and 6 a.m. and in the afternoon (2–4 p.m.).
  - Knowing this information, what are the implications for activities such as driving or attending class?
- Sleep (Part 3)
- Suprachiasmatic Nucleus: the body's "master clock"
  - Located in the hypothalamus
  - Communicates with other areas of the **hypothalamus** and the **reticular formation**, which regulates alertness and sleepiness
  - Receives signals from the eyes' retinal ganglion (light-sensing) cells
    - **Indirectly communicates with the pineal gland**
- Sleep (Part 4)
- Sleep (Part 5)
- Larks
  - Early riser; energized and alert early in the morning; more accomplished early in the day; weary at the end of the day
  - Prefer going to bed by 11 P.M. and rising before 8 A.M.

- **Owls**
  - Late riser; energy level builds slowly throughout the day; more productive at the end of the day
  - Prefer staying up late and “sleeping in”
- Sleep (Part 6)
- Jet Lag
  - Delayed adjustment to time zone change
  - Includes symptoms of gastrointestinal distress, headaches, and decrease in efficiency of brain activity
  - Can usually be reset in 1 to 2 hours per day

What strategies have you used to combat jet lag?

- The Stages of Sleep (Part I)
- KEY TERMS
  - **Beta waves (Stage W)**
    - Brain waves that indicate an alert, awake state
  - **Alpha waves**
    - Brain waves that indicate a relaxed, drowsy state
  - **Non-rapid eye movement (non-REM or NREM)**
    - Nondreaming sleep that occurs during three stages
  - **Theta waves**
    - Brain waves that indicate the early stage of sleep
  - **Delta waves**

- Brain waves that occur in slow-wave sleep, characterized by tall, low-frequency waves
- The Stages of Sleep (Part 2)
- Non-REM Sleep: Nondreaming sleep
  - NREM 1: lightest stage of sleep; hypnagogic hallucinations
  - NREM 2: sleep spindles and K-complexes
  - NREM 3: deep sleep; peak time for secretion of growth hormone
- *What brain waves dominate each stage of NREM sleep?*
- The Stages of Sleep (Part 3)
- Rapid Eye Movement (REM) sleep
  - Stage R
  - *What do we mean when we call REM sleep paradoxical sleep?*
    - Characterized by bursts of eye movements with brain activity similar to that of a waking state
    - Lack of muscle tone
    - Vivid, illogical dreams
- The Stages of Sleep (Part 4)
- Sleep Architecture
- *Sleep architecture, or the makeup of sleep cycles, changes throughout life.*
  - Infants spend almost half of their sleep in REM.
  - Older adults experience longer periods of light sleep.
- Sleep Disturbances (Part I)
- Narcolepsy
  - Rare neurological disorder characterized by excessive daytime sleepiness, which includes lapses into sleep and napping

- “Sleep attacks,” measured in seconds or minutes, can progress into longer naps.
- *Cataplexy*: an abrupt loss of strength or muscle tone that occurs when a person is awake
  - **Sudden onset following a period of emotional excitement**
  - Harriet Tubman’s symptoms of narcolepsy
- **Sleep Disturbances (Part 2)**
- **Sleep paralysis: temporary paralysis that strikes just before falling asleep or upon waking**
  - Episodes usually last a few seconds, but some go on for several minutes.
- **Hypnagogic hallucinations: hallucinations that occur at the transition between sleeping and waking**
  - Includes visual, auditory, tactile, and kinetic sensations
- **Treating narcolepsy**
  - Although several medications are available to help control symptoms, there is no known cure.
- **Sleep Disturbances (Part 3)**
- **REM Sleep Behavior Disorder**
  - A sleep disturbance in which the mechanism responsible for paralyzing the body during REM sleep is not functioning, resulting in the acting out of dreams.
  - Up to 65% of REM sleep behavior disorder sufferers have injured either themselves or their bedmates at one point or another.
  - Primarily affects older men (age 50 and up) and frequently foreshadows the development of serious neurodegenerative disorders
- **Sleep Disturbances (Part 5)**
- **Insomnia**
  - Most prevalent disorder
  - Characterized by inability to fall or stay asleep
  - Results in sleepiness and often difficulties with cognitive tasks
  - Symptoms experienced by about one-third of adults; 6% to 10% meet diagnostic criteria for insomnia disorder

- Nearly 8% of college students meet the criteria for insomnia
- *What aspects of college life may contribute to poor sleep and/or insomnia?*
  - To some degree it is inherited, but can be triggered by stress, depression, anxiety, jet lag, aging, drug use, and chronic pain
- Sleep Disturbances (Part 6)
- Sleepwalking
  - Occurs during non-REM sleep (typically Stage N3)
  - 25% of children experience at least one incident; may have genetic component
  - Contrary to urban myth, awakening a sleepwalker will not cause sudden death or injury
    - But, what is dangerous is leaving the front door unlocked and keys in a car's ignition, as sleepwalkers have been known to attempt driving
- Sleep Disturbances (Part 7)
- Sleep Terrors
  - Non-REM sleep disturbances primarily affecting children
  - Crying hysterically, breathing rapidly, and sweating
  - Child has no memory of the episode the next day
  - Typically children outgrow them

- Nightmares
  - Frightening dreams that occur in REM sleep
  - Unlike sleep terrors, nightmares can often be recalled in vivid detail.
  - People who frequently experience nightmares may be “more susceptible to daily stressors.”
- Sleep Deprivation
- Short-Term Sleep Deprivation
  - Laboratory studies show that sleep deprivation kills rats faster than starvation.
  - In humans, we see rapid deterioration of mental and physical well-being.
    - Staying awake for just 17 to 19 consecutive hours produces the same effect as having a blood alcohol content (BAC) of 0.05%, the legal limit in many countries.
  - Onset of *microsleeps*
- Long-Term Sleep Deprivation
  - Increased risk for heart disease, diabetes, weight gain, and weakened immune system
- REM Deprivation and REM Rebound
- Why Do We Sleep?
- The purpose of sleep has not been conclusively identified.
- Three theories
  - Restorative theory
  - Evolutionary theory
  - Consolidation of memories and learning
  
- Why Do We Dream? (Part I)
- Psychoanalysis and dreams

- Freud proposed that dreams are a form of *wish fulfillment*, or a playing out of unconscious desires.
- Two levels of content
  - **Manifest:** the remembered storyline of a dream
  - **Latent:** the hidden meaning of a dream
- Activation–synthesis model
  - Random neural activity in REM sleep is given meaning by our minds.
  - *How might activity in the vestibular system be interpreted in our dreams?*
- Dream A Little Dream
- Dream Content
  - Most feature ordinary, everyday scenarios
  - More likely to include sad events than happy ones
  - Relatively consistent across cultures
- Dream Duration
  - The average person starts dreaming about 90 minutes into sleep and then goes on to have about four to six dreams during the night.
  - Dreams seem to happen in real time.
- *Have you experienced lucid dreaming?*
  - Recent research has shown the ability to induce lucid dreams in a lab setting.
- Psychoactive Drugs
- Substances that cause changes in conscious experiences
- Includes caffeine, alcohol, nicotine, and prescription medication
  - Both legal and illegal drugs can be misused.
- Three major categories
  - Depressants
  - Stimulants
  - Hallucinogens

- The Dangers of Drugs in Combination
- Depressants (Part 3)
- Alcohol: The Most Commonly Used Depressant
- Binge Drinking
  - Consuming four or more drinks for women and five or more for men, on one occasion
  - Linked to poor grades, low self-esteem, and behavior problems in adolescents
  - Too much alcohol impairs sexual performance
- *How do you think alcohol consumption changed with the onset of the COVID-19 pandemic?*
- Depressants (Part 4)
- Light alcohol consumption
  - May boost cardiovascular health
- Overuse of alcohol has been linked to
  - Malnourishment
  - Cirrhosis of the liver
  - *Wernicke–Korsakoff syndrome*
  - Heart disease
  - Cancer
  - Traffic deaths
  - Fetal alcohol syndrome
- Stimulants (Part 1)
- Increase neural activity in the sympathetic nervous system, producing heightened alertness, energy, elevated mood, and other effects
- Cocaine

- Illegal in the United States, but remains a popular recreational drug
- Produces a sense of energy and euphoria
  - **Amplifies the effects of dopamine**
  - Effects last from a few minutes to an hour (depending on its administration)
- Stimulants (Part 2)
- **Amphetamines**
  - Stimulate the release of the brain's pleasure-producing neurotransmitter dopamine
  - Nonprescription use of methamphetamine is illegal, but people have learned how to brew this drug in their own laboratories.
  - Chronic meth use causes serious brain damage in the frontal lobes and other areas, creating attention, memory, and movement problems.
- **Caffeine**
  - Blocks action of neurotransmitter (adenosine) that normally muffles activity of excitatory neurons in brain
  - Makes person feel physically and mentally wired
  - Moderate long-term consumption linked with lower rates of depression and suicide and reduced cognitive decline with aging
- Hallucinogens (Part I)
- A group of psychoactive drugs that can produce hallucinations, distorted sensory experiences, alterations of mood, and distorted thinking

- Phencyclidine (PCP or *angel dust*) and ketamine (*Special K*) were developed to block pain in surgical patients during the 1950s and 1960s.
- Lysergic acid diethylamide (LSD)
  - Synthetically produced, odorless, tasteless, and colorless hallucinogen that is very potent
  - Produces extreme changes in sensations and perceptions
- Hallucinogens (Part 2)
- Methylenedioxymethamphetamine (MDMA)
  - A “club drug” known as Ecstasy
  - Produces a combination of stimulant and hallucinogenic effects
  - Has “unusual sociability-enhancing effects”
  - Ecstasy triggers a sudden general unloading of serotonin in the brain, after which serotonin activity is temporarily depleted until its levels are restored.
  - Even short term use can result in long term or permanent damage to serotonin pathways, as well as a host of other negative side effects.
  - Researchers are exploring the potential therapeutic use of MDMA for people dealing with trauma.
- Hallucinogens (Part 3)
- Marijuana
  - After alcohol, it’s the most widely used drug in the United States
  - Considered a Schedule I drug by the federal government
  - Marijuana comes from the hemp plant, *Cannabis sativa*
  - Contains tetrahydrocannabinol (THC), which alters pain perception, induces mild euphoria, and creates intense sensory experiences and time distortions
- Overuse and Dependence (Part 2)
- Physiological Dependence
  - With constant use of some psychoactive drugs, the body no longer functions normally without the drug.

- Withdrawal
- Delirium tremens (DTs)
- Tolerance

## • Psychological Dependence

- With constant use of some psychoactive drugs, a strong desire or need to continue using the substance occurs without the evidence of tolerance or withdrawal symptoms.

- Pleasant effects
- Urge or craving

## • Hypnosis (Part 3)

- The following characteristics are evident in a hypnotized person:

- ability to focus intently, ignoring all extraneous stimuli
- heightened imagination
- an unresisting and receptive attitude
- decreased pain awareness
- high responsivity to suggestions

- Hypnosis has been used therapeutically, with limited success.

## • Hypnosis (Part 4)

## • Hypnosis and Sensory Experiences

- Hilgard's ice water paradigm and the experience of a divided consciousness
- Using PET scans, some researchers have found evidence that hypnosis induces changes in the brain that might explain diminished pain perception.
- Mindfulness can also influence one's perception of pain.

## • Learning

## • Chapter 5

- What Is Learning? (Part 1)
- Key Terms
  - **Learning:** a *relatively enduring* change in behavior or thinking that results from our experiences
    - Occurs everyday; underlying this process are changes in the brain
    - Different than maturation
  - **Habituation:** basic form of learning evident when an organism does not respond as strongly or as often to an event following multiple exposures to it
  - **Stimulus:** event or occurrence that generally leads to a response
- Many principles of learning have come from animal research.
- What Is Learning? (Part 2)
- Three types of learning
  - **Classical conditioning:** two different stimuli are associated
  - **Operant conditioning:** connections between behaviors and consequences are made
  - **Observational learning:** learning occurs by watching and imitating others
- Classical Conditioning (Part 1)
- Pavlov's Dogs
  - As a physiologist, Pavlov set out to study digestion in dogs.
  - As his assistant brought food to the dogs, Pavlov realized that the dogs were salivating in response to the assistant's footsteps rather than the food.
    - The dogs had been *conditioned* to link certain sights and sounds with eating.
  - Pavlov then conditioned his dogs to salivate in response to auditory stimuli, such as bells, tones, and ticking metronomes.
- More than salivating dogs
- Classical Conditioning (Part 2)

- **Key Terms**
  - **Neutral stimulus:** stimulus that does not cause a relevant automatic or reflexive response
  - **Classical conditioning:** learning process in which two stimuli become associated with each other; when an originally neutral stimulus is conditioned to elicit an involuntary response
- **Classical Conditioning (Part 3)**
- **Unconditioned Stimulus (US)**
- Stimulus that automatically triggers an involuntary response without any learning needed
- **Unconditioned Response (UR)**
- Reflexive, involuntary response to an unconditioned stimulus
- **Classical Conditioning (Part 4)**
- **Conditioned Stimulus (CS)**
- Previously neutral stimulus that an organism learns to associate with an unconditioned stimulus
- **Conditioned Response (CR)**
- Learned response to a conditioned stimulus
- **Classical Conditioning (Part 5)**
- **Acquisition:** the initial learning phase in both classical and operant conditioning
- **Pavlov's paradigm**
  - The meat is always an unconditioned stimulus (US)—the dog never has to learn how to respond to it.
  - The dog's salivating is initially an unconditioned response (UR) to the meat but eventually becomes a conditioned response (CR) as well.
  - Difference between US and CS

- The US automatically triggers the response, while the CS elicits a response that has been *learned* by the organism.
- Classical Conditioning (Part 7)
- **Stimulus Generalization**
  - After an association is forged between the CS and the CR, the learner often responds to similar stimuli as if they are the original CR.
  - *Using Pavlov's paradigm, what would be an example of stimulus generalization?*
- **Stimulus Discrimination**
  - The ability to differentiate between a particular CS and other significantly different stimuli is stimulus differentiation.
  - *Using Pavlov's paradigm, what would be an example of stimulus discrimination?*
- Classical Conditioning (Part 8)
- **Extinction**
  - The process by which the conditioned response decreases after repeated exposure to the conditioned stimulus in the absence of the unconditioned stimulus
- **Spontaneous Recovery**
  - The reappearance of a conditioned response following its extinction

- Suggests the association is not “forgotten” but rather suppressed
- Classical Conditioning (Part 9)
- **Higher Order Conditioning:** with repeated pairings of a conditioned stimulus and a second neutral stimulus, that second neutral stimulus becomes a conditioned stimulus as well
- Classical Conditioning (Part 11)
- **Conditioned Taste Aversion:** a form of classical conditioning that occurs when an organism learns to associate the taste of a particular food or drink with illness
  - Has **adaptive value**
  - *Have you experienced conditioned taste aversion in your life?*
- Garcia’s Rats
  - Demonstrated that rats linked sick feelings with tastes and smells
  - Importance of **biological preparedness**
  - *How do the rats’ behaviors illustrate adaptive behavior?*
- Little Albert and the Conditioned Emotional Response
- “Little Albert” was a baby who developed a fear of rats through his participation in an ethically questionable experiment conducted by John B. Watson and Rosalie Rayner.
  - US = loud noise; UR = fear
  - CS = white rat; CR = fear
  - Evidence of stimulus generalization
- Operant Conditioning (Part 1)
- Involves learning that occurs when voluntary actions become associated with their consequences

- *So how does operant conditioning differ from classical conditioning?*
- *In the case of Cesar, helping people connect with their dogs is a positive consequence. How would this impact Cesar's work?*
- Operant Conditioning (Part 2)
- Edward Thorndike
  - Put a cat in a latched cage called a "puzzle box" and planted food outside the door.
  - Initially, Thorndike's cats pawed around haphazardly until they managed to unlatch the door and then eat the food.
  - As the trials wore on, the felines learned to free themselves more quickly.
  - **Law of Effect**
- Operant Conditioning (Part 3)
- More than cats and puzzle boxes
  - *When was the last time your behavior changed as a result of a pleasurable outcome?*
- Key Terms
  - **Reinforcers:** events, stimuli, and other consequences that increase the likelihood of a behavior recurring
  - **Reinforcement:** process of increasing the frequency of behaviors with consequences
- Skinner and Behaviorism
- American psychologist B. F. Skinner is one of the most influential psychologists of all time.
- Skinner believed that all thoughts, emotions, and behaviors (basically all things psychological) are shaped by factors in the environment.
- Operant Conditioning (Part 4)
- **Positive Reinforcement**

- The process by which reinforcers are added or presented following a target behavior, increasing the likelihood of it occurring again.
- **Negative Reinforcement**
- The removal of an unpleasant stimulus following a target behavior that increases the likelihood of it occurring again.
- Operant Conditioning (Part 5)
- **Primary Reinforcers**
  - Satisfies a biological need
  - Examples: food, water, and physical contact
- **Secondary Reinforcers**
  - Does not satisfy a biological need but often gains power through its association with a primary reinforce
  - Examples: money and good grades
- Shaping and Successive Approximations
- **Successive Approximations:** method that uses reinforcers to condition a series of small steps that gradually approach the target behavior
- **Shaping:** process by which a person observes the behaviors of another organism, providing reinforcers if the organism performs at a required level
- Continuous and Partial Reinforcement (Part I)
- **Continuous reinforcement:** Every target behavior is reinforced
  - Ideal for establishing new behaviors during the acquisition phase.

- **Partial reinforcement:** Target behaviors are reinforced intermittently, not continuously
  - Works better for maintaining behaviors than establishing behaviors
  - Example: Uber drivers
  - *When have you experienced partial reinforcement in your life?*
- Continuous and Partial Reinforcement (Part 2)
- **Partial Reinforcement Effect:** The tendency for behaviors acquired through intermittent reinforcement to be more resistant to extinction than those acquired through continuous reinforcement
- Partial Reinforcement Schedules
  - Fixed-ratio schedule
  - Variable-ratio schedule
  - Fixed-interval schedule
  - Variable-interval schedule
- Continuous and Partial Reinforcement (Part 3)
- **Fixed-Ratio Schedule**
  - Subject must exhibit a preset number of desired responses or behaviors before a reinforcer is given
  - Produces a high response rate, but with a characteristic dip immediately following the reinforcement
- **Variable-Ratio Schedule**
  - Subject must exhibit a specific number of desired responses or behaviors before a

reinforcer is given, but the number changes across trials

- Number fluctuates around a precalculated average
- Produces a high response rate and behaviors that are difficult to extinguish
- Partial Reinforcement: Ratio Schedules
- Continuous and Partial Reinforcement (Part 4)
- **Fixed-Interval Schedule**
- A reinforcer is given for the first target behavior occurring after a specific time interval.
- The target behavior tends to increase as each time interval comes to an end.
- **Variable-Interval Schedule**
- The reinforcer comes after an interval of time goes by, but the length of the interval changes from trial to trial (within a predetermined range based on an average interval length).
- Tends to encourage steady patterns of behavior
- Partial Reinforcement: Interval Schedules
- Punishment

- Two categories
  - **Positive punishment:** something aversive or disagreeable is applied following a target behavior
    - Example: spanking is a controversial form of positive punishment
    - In India, honking drivers get punished by having to wait longer at red lights
  - **Negative punishment:** taking away something valuable following a target behavior
    - Example: drunk drivers get their license taken away

- Punishment versus Negative Reinforcement

Remember that **punishment** (positive or negative) is designed to *decrease* the behavior that it follows, whereas **reinforcement** (positive or negative) aims to *increase* the behavior.

- Let's Compare: Operant and Classical Conditioning
- Both operant and classical conditioning are forms of learning, and they share many common principles.
- Let's Contrast: Operant and Classical Conditioning
- Cesar's Role Models
- Once in the United States, Cesar looked for someone to teach him American dog training. However, he learned his most important teachers were in Mexico.
- The ranch dogs served as role models for Cesar.
  - **Models:** An individual or character whose behavior is being imitated

- **Observational learning:** learning that occurs as a result of watching the behavior of others
- Observational Learning (Part 1)
- Albert Bandura's Bobo doll study
  - Seventy-six preschool children were placed in a room one at a time with an adult.
  - Some of the children were paired with adults who acted aggressively toward a 5-foot-tall inflatable Bobo doll; others were paired with adults who played with toys peacefully.
  - At the end of the experiment, all the children were allowed to play with a Bobo doll themselves.
  - *What were Bandura's key findings?*
- Albert Bandura's Bobo Doll Study
- Observational Learning (Part 2)
- **Prosocial behaviors:** actions that are kind, generous, and beneficial to others
  - Both children and adults can learn these behaviors by observing models.
  - Examples: *Sesame Street*, *Dora the Explorer*, prosocial song lyrics
  - Environmental forces can push adults to adopt prosocial behaviors as well, such as the wearing of facemasks during the coronavirus pandemic.
  
- From the Pages of Scientific American
- Masks are not the norm in Western countries.
- However, strange behaviors can become standard and long-standing customs can change.
- To bring about such change, a new behavior must first ascend to the status of a social norm.
  - In one study, the tipping point for achieving enough critical mass to initiate social change proved to be just 25% of participants.
  - Celebrities as well as state, local, and private institutions can serve as influencers.

- Latent Learning
- A type of learning that occurs without awareness and regardless of reinforcement
- The learning is not evident until there is a need to use it.
- Tolman's Rats
  - Groups of rats learned how to navigate a maze at remarkably different rates.
  - *After looking at the figure, can you tell how the reinforcement affected the rats' performance?*
- Cognitive Maps
- **Cognitive maps:** a mental representation of physical space
  - Like Tolman's rats, we remember locations, objects, and details of our surroundings without realizing it, and bring this information together in a mental layout.
  - Learning can occur in the absence of reinforcement.
  - The brain processes that enable cognitive map-making may help us form "social maps," too.
- Memory
- Chapter 6
- An Introduction to Memory (Part I)
- Memory
  - The processes involved in the encoding (collection), storage, and retrieval of information
    - Multiple theories and models exist, all with strengths and weaknesses
    - Not completely understood but a basic agreement on general processes involved

- An Introduction to Memory (Part 2)
- Memory's general processes: encoding, storage, and retrieval
  - **Encoding**
    - The process through which information enters our memory system
    - Occurs when stimuli associated with events are converted to neural activity that travels to the brain
    - Once it travels to the brain, it either *enters the memory system (encoded to be stored for a longer period of time) or it slips away*
- An Introduction to Memory (Part 3)
- Memory's general processes: encoding, storage, and retrieval
  - **Storage**
    - Preserving information for possible recollection in the future
    - Following his bout with encephalitis, Clive's ability to create new long-term memories was destroyed—he could no longer store new information for more than seconds at a time.

- **Retrieval**
  - Accessing information encoded and stored in memory
  - Sometimes information is encoded and stored, but we have difficulty accessing it (*retrieval error*)
- An Introduction to Memory (Part 4)
- Levels of Processing Framework
  - Processing of information can occur along a continuum
    - Shallow
    - Intermediate
    - Deep
  - Deeper levels of processing helps create stronger memories.
- Stages of Memory (Part 1)
- The **information-processing model** conceptualizes memory as a flow of information through a series of stages: *sensory memory*, *short-term memory*, and *long-term memory*.
- Stages of Memory (Part 2)
- Each stage of memory has a certain type of storage with distinct capabilities
  - **Sensory memory** can hold vast amounts of sensory stimuli for a sliver of time.
  - **Short-term memory** can temporarily maintain and process limited information for longer periods (about 30 seconds, if there are no distractions).

- **Long-term memory** has essentially unlimited capacity and can hold onto information indefinitely.
- Stages of Memory (Part 3)
  - Sensory Memory: The First Stage of the Information-Processing Model
    - **Iconic memory**
      - Visual impressions that are photograph-like in their accuracy but dissolve in less than a second
  - Stages of Memory (Part 4)
  - Sensory Memory: The First Stage of the Information-Processing Model
    - **Eidetic memory**
      - Ability to “see” an image or object sometimes long after it has been removed from sight with amazing specificity
      - Occurs primarily in children
    - **Echoic memory**
      - Exact copies of the sounds we hear
      - Lasts from about 1 to 10 seconds
  - Stages of Memory (Part 5)
  - Short-Term Memory: The Second Stage of the Information-Processing Model
    - Duration (without distraction) is about 30 seconds.
    - **Maintenance rehearsal**

- Technique of repeating information to be remembered, increasing the length of time it can be held in short-term memory
- Does not work well if you are distracted
- Stages of Memory (Part 6)
- Short-Term Memory: The Second Stage of the Information-Processing Model
- Are there ways to expand our short-term memory?
  - Digit Span Test
  - Most people can attend to five to nine items at one time
  - **Chunking**
    - Grouping numbers, letters, or other items into meaningful subsets as a strategy for increasing the quantity of information that can be maintained in short-term memory
- Stages of Memory (Part 7)
- **Working Memory**
  - The active processing of information in short-term memory
  - Includes maintenance and manipulation of information
  - Helps us accomplish complex tasks, such as solving math problems or following directions
- Stages of Memory (Part 8)
- **Four Components of Working Memory**
  - **Phonological loop**

- Responsible for working with verbal information for brief periods of time
  - **Visuospatial sketchpad**
    - Where visual and spatial data are briefly stored and manipulated
  - **Central executive**
    - Directs attention, makes plans, and coordinates activities
    - Determines what information is used and what is ignored
  - **Episodic buffer**
    - Forms the bridge between memory and conscious awareness
- 
- Stages of Memory (Part 9)
  - Stages of Memory (Part 10)
  - Stages of Memory (Part 11)
  - **Explicit Memory**
  - A type of memory you are aware of having and can consciously express in words or declare, including memories of facts and experiences.
  - **Implicit Memory**
  - A memory of something you know or know how to do, which may be automatic, unconscious, and difficult to bring to awareness and express.
  - Stages of Memory (Part 12)
  - **Semantic Memory**
  - The memory of information theoretically available to anyone, which pertains to general facts about the world
  - **Episodic Memory**

- The record of memorable experiences or “episodes” including when and where an experience occurred
- Stages of Memory (Part 13)
- **Flashbulb Memory**
  - Detailed account of circumstances surrounding an emotionally significant or shocking, sometimes historic, event
  - Frequently recall the precise moment you learned of an event
  - Experienced across cultures, but the content of those memories may differ
  - Sometimes include inaccuracies or lack specific details
  
- Stages of Memory (Part 14)
- **Implicit Memory**
  - A memory for something you know or know how to do, but which might be automatic or unconscious
  - Includes memories formed through classical conditioning
- **Procedural Memory**
  - The unconscious memory of how to carry out a variety of skills and activities
  - Type of implicit memory
  - *What procedural memories do you have?*
- The Best Way to Make Memories (Part 1)
- **Mnemonics:** techniques to improve memory
  - First-letter technique
  - Acronyms
  - Method of loci
    - Mnemonic device in which person visualizes items to be learned with landmarks in some familiar place

- Works well for lists
- The Best Way to Make Memories (Part 2)
- Create hierarchies
- Use effortful processing
- Elaborative rehearsal
- Visualization
- Distributed practice

How many of these strategies have you tried? Which have worked best?

- Retrieval and Memory (Part 1)
- What Can You Retrieve?
  - **Retrieval cues**
    - Stimuli that aid in retrieval of information that is difficult to access
  - **Priming**
    - The stimulation of memories as a result of retrieval cues in the environment
    - Retrieval cues in Clive Wearing's case primed his memory
    - Made possible by *implicit* memory
- Retrieval and Memory (Part 2)

- **Recall**
  - Retrieving information held in long-term memory without explicit retrieval cues
  - More difficult than recognition
  - Example: short-answer test question
- **Recognition**
  - Matching incoming data to information stored in long-term memory
  - Have to identify information, rather than come up with information
  - Example: multiple-choice test question
- Retrieval and Memory (Part 3)
- **Serial Position Effect**
  - The ability to recall items in a list depends on where they are in the series
  - Primacy effect
  - Recency effect
- Across the World: Memory and Culture
- *What are some of your most important memories, and how do you think culture helped shape them?*
- Collectivist and individualistic cultures
  - Differences in content of memories
  - May be influenced by degree of urbanization
- Retrieval and Memory (Part 4)
- **Encoding Specificity Principle**

- Memories are more easily recalled when the context and cues at the time of encoding are similar to those at the time of retrieval.
  - Supported by Godden and Baddeley's (1975) scuba diving study
  - Some evidence that summoning a memory for an event reactivates the same brain areas that became excited during the event itself.
- Retrieval and Memory (Part 5)
  - **State-Dependent Memory**
  - Remembering things are easier when physiological and psychological conditions, including moods and emotions, are similar at the time of encoding and retrieval.
  - **Mood Congruence**
  - Retrieval is easier when the content of a memory corresponds to our present emotional state.
  - Retrieval and Memory (Part 6)
  - **Memory Savings: Easier the Second Time Around**
    - **Relearning**
      - Material learned previously is acquired more quickly in subsequent exposures.
      - First quantified by Hermann Ebbinghaus
    - *What does relearning look like under real-world circumstances?*
      - Bowers et al. (2009) found that people who have knowledge of language (non-explicit) from early life often show a "memory savings" when trying to relearn language as adults.
  - **Why Do We Forget? (Part 1)**
  - **Ebbinghaus' Curve of Forgetting**
  - **Why Do We Forget? (Part 2)**
  - **Encoding Failure**
    - Try this: Are any of these the correct Apple logo?
  - **Storage Failure**
    - Memory decay

- Retrieval Failure
  - Tip of the tongue phenomenon
- Why Do We Forget? (Part 3)
- Proactive Interference
  - The tendency for information learned in the past to interfere with the retrieval of new material
- Retroactive Interference
  - The tendency for recently learned information to interfere with the retrieval of things learned in the past
- Proactive and Retroactive Interference
- Reliability of Memory (Part I)
- Reconstructionist Model of Memory
  - “Memories are understood as creative blendings of fact and fiction” (Loftus & Ketcham, 1994, p. 5).
- Misinformation Effect
  - Loftus and Palmer’s (1974) classic study
  - The tendency for new and misleading information to distort one’s memory of an incident.
  - Eyewitness accounts of accidents, crimes, and other important events might be altered by factors that come into play *after* the event occurs.
  - Children are especially susceptible to suggestion, making it difficult to get accurate eyewitness testimony.
- From the Pages of Scientific American
- Drunk Witnesses Remember a Surprising Amount
  - Both inebriated and sober people who were interviewed immediately demonstrated better recollection of a film than their drunk or sober counterparts who were questioned later.
- Implication: Intoxicated witnesses should be interviewed sooner rather than later.

- *How might the findings described above relate to the concept of state-dependent memory?*
- Reliability of Memory (Part 2)
- False Memories
  - Would you believe that looking at photoshopped pictures can lead to the creation of false memories?
  - In one study, it was discovered that participants could “remember” hot air balloon rides they never took after looking at doctored photos of themselves as children on balloon rides.
  - **Rich false memories**
  - Malleability of memory, combined with suggestive interrogation techniques, can lead to false confessions.
- Repressed Memories
- Few topics have stirred up as much controversy as repressed memories.
- Based on research, the APA released a position statement with its findings:
  - The repressed memory debate should not detract from child sexual abuse issues.
  - Most victims of sexual abuse have at least some memory of the abuse.
  - Memories of past abuses can be forgotten and remembered at a later time.

- People sometimes do create false memories of experiences they never had.
- There is not a complete understanding of how accurate and flawed memories are formed.
- The Biology of Memory (Part 1)
- Exploring the causes of memory failure helps us understand the biological basis of memory.
- Amnesia (memory loss) can result from either a physical or psychological condition.
  - Amnesia runs on a continuum from mild to extreme
  - Two different types of amnesia
    - Anterograde
    - Retrograde
- The Biology of Memory (Part 2)
- *Retro* means “before,” so retrograde amnesia is the inability to retrieve memories for events that occurred *before* an amnesia-causing injury.
- *Antero* means “after,” so anterograde amnesia is the inability to form memories for events that occur *after* an injury.
- Clive Wearing showed evidence of both types of amnesia.
- The Biology of Memory (Part 5)

- The Role of the Hippocampus
  - Essential for creating new explicit memories but *not* necessarily implicit memories
    - Supported by research on infantile amnesia as well as the case of H.M.
  - Memory formation may be occurring simultaneously in both the hippocampus and the cortex.
  - Responsible for accessing young memories, but then passes on that responsibility to other brain regions as memories grow older
- The Biology of Memory (Part 6)
- Memories in the Brain: A Micro Perspective
  - **Long-Term Potentiation**
    - The increased efficiency of neural communication over time, resulting in learning and the formation of memories
    - May be the biological basis for learning
    - Much of what we learned has come from research with sea slugs (*Aplysia*)
- The Biology of Memory (Part 7)
- **Alzheimer's Disease**
  - A progressive, devastating brain illness that causes cognitive decline, including memory, language, and thinking problems
  - Neurofibrillary tangles
  - Amyloid plaques
- The Biology of Memory (Part 8)
- Proposed causes of Alzheimer's disease

- We know some forms of the disease are inherited (APOEε4 gene).
- We also know that factors such as diet and exercise can influence the development and progression of the disease.
- There is no cure for Alzheimer's at this time, and current treatments focus on reducing the severity of symptoms rather than correcting the brain damage responsible.
  - Clinical trials are promising.
  - Lifestyle changes have been shown to decrease the speed and severity of cognitive decline.
- The Biology of Memory (Part 9)
- **Chronic Traumatic Encephalopathy (CTE)**
  - A neurodegenerative disease that leads to atypical deposits of tau protein throughout various regions in the brain as a result of repeated mild traumatic brain injury
  - Symptoms: significant memory issues, impulsivity, aggression, insomnia, and depression.
  - CTE is progressive.
  - Research on CTE in athletes
- The Biology of Memory (Part 10)
- Cognition, Language, and Intelligence
- Chapter 7
- Cognition and Thinking (Part 1)
- **Early psychologists:** Introspection and personal conscious activities
- **1930s and the rise of behaviorism:** Focus on observable behaviors
- **1950s cognitive revolution:** Studying mental processes in an empirical fashion, which required new methods and frameworks
- Cognition and Thinking (Part 2)

- **Cognition**
- The mental activity associated with obtaining, converting, and using knowledge
- **Thinking**
- Mental activity associated with coming to a decision, reaching a solution, or forming a belief
  - A specific type of cognition
- Cognition and Thinking (Part 3)
- **Concepts**
  - Mental representations of categories of objects, situations, and ideas that belong together based on their central features or characteristics
  - Aid in organizing and synthesizing information and in drawing conclusions about information we've not encountered before
  - Example: Cool clouds
- Cognition and Thinking (Part 4)
- Hierarchies of Concepts
  - *Superordinate*: Broadest category; encompasses all objects in group
  - *Midlevel*: Basic level; general grouping most often used in everyday experiences
  - *Subordinate level*: Narrow; specific
- Most children learn midlevel concepts first, followed by superordinate and subordinate concepts.
- Cognition and Thinking (Part 5)
- **Natural Concepts**
- Mental representations of categories resulting from experiences in daily life
- Develop as a result of everyday encounters and vary according to our culture and individual experiences
- Example: forest bathing

- **Formal Concepts**
  - Mental representations of categories created through rigid and logical rules or through features
  - Allow us to categorize objects and ideas in a very precise way
  - Used heavily in natural science and math
- Cognition and Thinking (Part 6)
- **Prototypes**
  - The ideal or most representative example of a natural concept
  - Helps us categorize or identify specific members of a concept
- Problem Solving (Part 1)
- **Problem solving**
  - The variety of approaches we can use to achieve our goals
    - Initial state to goal state (Newell et al., 1958)
    - Obstacles that block path to solution (Farmer & Matlin, 2019)
  - How can this apply to your life?
    - *Think about a problem you want to solve and identify the initial state, the goal state, and the obstacles in your way.*
- Problem Solving (Part 2)
- Step one is understanding the problem. Only then you can enact problem solving strategies.
  - Trial and error
  - Algorithms

- Heuristics
  - Helpful in shrinking the number of possible solutions to a manageable size
  - However, there is no guarantee you will arrive at a correct solution
- Problem Solving (Part 3)
- Insight
  - IKEA and the “a-ha” moment
  - A unique pattern of neural activity appears to accompany insight
    - Immediately preceding a moment of insight, we see increased activation in the frontal and temporal lobes ( Kounios & Beeman, 2009 ).
    - Flashes of insight are also accompanied by activity in dopamine “reward networks” beneath the cortex
  - Sometimes the best strategy is to step away and let your brain work behind the scenes.

- Decision Making (Part 1)
- **Decision making**
  - The cognitive process of choosing from approaches used to achieve a goal
  - Often involves predicting the future
    - Some situations are more certain, others involve more unknowns and thus are riskier
  - With the help of her mother, Dr. Taylor made the decision to undergo surgery.
- Decision Making (Part 2)
- **Availability heuristic**
  - A decision-making strategy that predicts the likelihood of something happening based on how easily a similar type of event from the past can be recalled
  - Can be accurate, but only when based on appropriate information
    - Recency
    - Frequency
    - Familiarity
    - Vividness
- Decision Making (Part 2)
- **Availability heuristic**
  - A decision-making strategy that predicts the likelihood of something happening based on how easily a similar type of event from the past can be recalled
  - Can be accurate, but only when based on appropriate information
    - Recency
    - Frequency

- Familiarity
  - Vividness
- Decision Making (Part 3)
- **Representativeness Heuristic**
  - A decision-making strategy that evaluates the degree to which the primary characteristics of a person or situation are similar to our prototype of that kind of person or situation
  - Can be useful, but not when our prototypes ignore base rates and draw on simplistic stereotypes
- **Confirmation Bias**
  - The tendency to look for evidence that upholds our beliefs and to overlook evidence that runs counter to them
  - One of the reasons we are vulnerable to misinformation spread through the Internet
- Confirmation Bias and Fake News
- What is fake news?
- Social media uses algorithms to minimize discordant information, which functions like virtual confirmation bias.
- How can we combat fake news?
  - **Limit sharing options on social media.**
  - **Ask critical questions.**

- Force yourself to consume content that challenges your long-held opinions and beliefs.
- Decision Making (Part 4)
- **Hindsight bias**
  - The mistaken belief that an outcome could have been predicted easily
  - “I knew it all along”
  - Can you identify a situation where you experienced hindsight bias?
- Decision Making (Part 5)
- Some factors impede the decision maker; sometimes it’s an aspect of the problem itself.
- **Framing effect**
  - Demonstrates how presentation or context of problem can influence decision outcome
  - Often occurs outside of awareness
  - Also applies to wording
    - Would you rather consume ground beef that is 80% lean or 20% fat?
- Head Trauma and Cognition (Part I)
- Hard hitting legend
  - The football career of Harry Carson (#53) spanned 21 years.
  - In that time, it is estimated that Harry took as many as 30,000 hits to the head.

- Halfway through his career, Harry starting having migraines, unexplained mood swings, and suicidal thoughts. He also had difficulties with language.
- **Post-concussion syndrome**
  - Includes a collection of physical and psychological symptoms that linger long after concussion occurs
  - Linked with subsequent speech and language disturbances
- **Head Trauma and Cognition (Part 2)**
- **Chronic traumatic encephalopathy (CTE)**
  - Neurodegenerative disease caused by repeated head trauma
  - Symptoms may include abnormal accumulation of *tau*, headaches, depression, anger, aggression, and cognitive problems.
  - The case of Aaron Hernandez
- **Language (Part 1)**
- **Language**
  - A system for using symbols (words, gestures, and sounds) to think and communicate
  - Can be spoken, written, or signed
  - Humans regularly find new meanings for old words or invent new ones.
- **Language (Part 2)**
- **Basic Elements of Language**
  - Phonemes
  - Morphemes
  - Syntax
  - Grammar
  - Semantics
  - Pragmatics
- **Language (Part 3)**
- **Is Language Hardwired?**
  - Learning theorists: We learn language like we learn other behaviors.
  - Chomsky's position: We are born with inherent language capabilities.
    - **Language acquisition device (LAD)**

- Capacity for language exists across cultures and in nonhearing children
- Is Language Unique to Humans?
  - Capacity for displacement is unique to humans
  - Involves referring to hypothetical events
- Language (Part 4)
- Thinking What We Say
  - **Whorf: Linguistic relativity hypothesis**
    - Theorized languages have different effects on thinking and perception.
    - Observed particular cultures have many words for snow
  - Criticisms
    - Suggestion that Whorf exaggerated or underestimated the number of words
- Intelligence (Part 1)
- **Intelligence**
  - One's innate ability to solve problems, adapt to the environment, and learn from experiences
    - When Harry was moved to middle linebacker, he showed he was a fast-thinking problem solver, that could multitask and make sound judgments on the fly.
  - Relates to a broad array of psychological factors, including memory, learning, perception, and language
  - To some degree, it is a cultural construct reflecting cultural values.
- Intelligence (Part 2)
- Theories of Intelligence
  - **General intelligence (g-factor)**

- Spearman speculated that humans have a singular underlying aptitude or intellectual ability.
- **Multiple intelligences**
  - Gardner proposed eight types of intelligences, or “frames of mind,” and suggested that partial evidence is apparent in people with brain damage.
- Intelligence (Part 3)
- Intelligence (Part 4)
- Theories of Intelligence
  - Sternberg’s Triarchic Theory of Intelligence
    - **Analytic intelligence:** Capacity to solve problems
    - **Creative intelligence:** Knowledge and skills used to handle new situations
    - **Practical intelligence:** Ability to adjust to different environments
- Intelligence (Part 6)
- A Brief History of Intelligence Testing
  - Binet: Created a way to identify students who have difficulty learning in regular classrooms
    - With Simon, created an assessment to compare the mental abilities of a child with those of a group of children the same age

- Mental age (MA)
- Stern: Devised the intelligence quotient (IQ)
  - **Allows for comparisons across age groups**
- Intelligence (Part 7)
- **Stanford–Binet Tests**
  - Terman revised Stern’s work, changed and added items, developed standards for U.S. children, and extended test to teens and adults.
  - Now in its fifth edition
- **Wechsler Tests**
  - Wechsler created intelligence tests consisting of a variety of subtests designed to measure different aspects of intellectual ability.
    - Wechsler Adult Intelligence Scale (WAIS-IV)
    - Wechsler Intelligence Scale for Children (WISC-V)
    - Wechsler Preschool and Primary Scale of Intelligence (WPPSI-IV)
- Intelligence (Part 9)
- **Let’s Test the Intelligence Tests**
  - The results of an intelligence test aren’t meaningful unless the test is *valid, reliable, and standardized*.
  - **Validity:** the degree to which an assessment measures what it intends to measure
- Intelligence (Part 10)
- **Reliability:** the ability of a test to provide consistent, reproducible results
- Intelligence (Part 11)

- **Standardization:** administering a test to a large sample and then publishing the average scores (norms) for specified groups.
  - Also achieved using standard procedures, which ensures no one is given an unfair advantage.
- **Normal curve**
  - Bell-shaped symmetrical distribution, with the highest point reflecting the average score
- Intelligence (Part 12)
- But are they fair?
- **Fairness:** Are these tests biased in favor of people of a certain gender, ethnicity, or socioeconomic class?
- Intelligence (Part 14)
- The Diversity of Human Intelligence
- **Intellectual Disability**
  - Delay in thinking, intelligence, and social/practical skills before age 18
  - IQ < 70 and adaptive functioning deficits
  - Rosa's Law, signed in 2010, removed the phrase "mental retardation" from federal, health, education, and labor laws
- **Causes of intellectual disability**
  - Nearly half have unidentifiable causes
  - Down syndrome, fetal alcohol syndrome, Fragile X syndrome, and environmental factors
- Intelligence (Part 16)
- What makes an ideal leader?
- **Emotional Intelligence (Goleman)**
  - The capacity to perceive, understand, regulate, and use emotions to adapt to social situations
  - Manifested in people who are self-aware and can effectively judge how to behave in social situations
  - Related to job and school performance
- Intelligence (Part 17)

- Origins of Intelligence
  - Heritability
    - The degree to which hereditary factors (genes) are responsible for a particular characteristic or trait observed within a population
    - Refers to the proportion of variation in a characteristic attributed to genetic factors
      - Cognitive abilities run in families; approximately 40–50% of variability due to genes.
    - Applies to groups of people, NOT to individuals
  - Creativity (Part 1)
  - Creativity (Part 2)
  - **Divergent Thinking**
    - The ability to devise many solutions to a problem
    - A component of creativity
    - Guilford's *Unusual Uses Test*
  - **Convergent Thinking**
    - Conventional approach to problem solving that focuses on finding a single best solution to a problem by using previous experience and knowledge
  - Human Development

- Chapter 8
- Human Development (Part 1)
- **Developmental Psychology**
  - A field of psychology that examines age-related physical, cognitive, and socioemotional changes across the life span
- Human Development (Part 2)
- **Physical development**
  - Involves *maturation* wherein the body follows a universal, biologically driven progression in a generally predictable pattern
- **Cognitive development**
  - Includes changes in memory, problem solving, decision making, language, and intelligence that tend to follow a universal course early in life and considerably vary with age
- **Socioemotional development**
  - Refers to social behaviors, emotions, and changes experienced in relationships, feelings, and overall disposition
- Human Development (Part 3)
- **Biopsychosocial perspective**
  - Recognizes contributions and interplay of biological, psychological, and social forces shaping human development
- **Three debates**
  - Nature and nurture
  - Stages and continuity
    - **Concept of a critical period**
  - Stability and change
- Human Development (Part 4)
- **Developmental psychologists use multiple research designs.**
  - **Cross-sectional method**
    - Examines people of different ages at a single point in time
    - Garner a lot of information quickly but does not address **cohort effects**
  - **Longitudinal method**

- Examines one sample of people over a period of time to determine age-related changes
    - Challenges include attrition, practice effects, expense, and time
  - **Cross-sequential method**
    - Examines groups of people of different ages, following them across time
    - Costly and requires many participants
- 
- Genetics, Conception, and Prenatal Development (Part 1)
  - What are chromosomes and genes?
    - **Chromosomes**
      - Inherited threadlike structures composed of deoxyribonucleic acid (DNA)
    - **Deoxyribonucleic acid (DNA)**
      - Molecule that provides the instructions for the development and production of cells
    - **Gene**
      - Specified segment of a DNA molecule
  - Genetics, Conception, and Prenatal Development (Part 2)
  - Every cell in your body, except red blood cells and sex cells (sperm or egg), contains a full set of 23 chromosome pairs like those shown here.
  - The primary component of each chromosome is a single, tightly wound molecule of DNA.

- Within that DNA are around 20,000 genes, each determining specific traits such as hair texture.
- Genetics, Conception, and Prenatal Development (Part 3)
- **How exactly did you get your genes from your biological parents?**
  - Genes are found in chromosomes.
  - Chromosomes are inherited from biological parents.
  - Sperm and egg both contain 23 chromosomes = 23 pairs.
    - Fusion of the sperm and egg creates a **zygote**
- Genetics, Conception, and Prenatal Development (Part 4)
- Twins
  - **Monozygotic twins:** Identical twins develop from one egg inseminated at conception, which then splits into two separate zygotes.
  - **Dizygotic twins:** Fraternal twins develop from two eggs inseminated by two sperm and are as genetically similar as any sibling pair.
    - Assisted reproductive technology (ART) may increase the odds of a woman releasing more than one egg.
- Genetics, Conception, and Prenatal Development (Part 5)
- **Sex Chromosomes**
  - Twenty-third chromosome pair determines genetic sex.
  - Father's sperm can contribute either an X or Y; mother's egg always contributes an X.
    - XX typically develops into a female
    - XY typically develops into a male

- Fetal sex glands, instructed by the presence or absence of the Y chromosome, develop into testes (male) or ovaries (female).
  - Testes secrete androgens
  - Ovaries secrete estrogen
- Genetics, Conception, and Prenatal Development (Part 6)
- Diversity of Sexual Development
  - In some cases, irregularities in genes or hormone activity can lead to differences of sex development.
  - **Intersexual** development results in ambiguous or inconsistent biological indicators of male or female in the sexual structures and organs.
    - Androgen insensitivity syndrome (XY, but with partial or complete insensitivity to androgens)
    - Turner's syndrome (single X chromosome)
    - Klinefelter's syndrome (XXY)
      - About 0.13% of infants are born with intersex traits
- Genetics, Conception, and Prenatal Development (Part 7)
- Dominant Gene
  - One of a pair of genes that has power over the expression of an inherited characteristic
- Recessive Gene
  - One of a pair of genes that is overpowered by a dominant gene

- Polygenic inheritance
- Genetics, Conception, and Prenatal Development (Part 8)
- **Genotype**
- An individual's complete collection of genes
- **Phenotype**
  - The observable expression or characteristics of one's genetic inheritance
  - Field of **epigenetics**
    - A "bridge" between nature and nurture
- Genetics, Conception, and Prenatal Development (Part 9)
- From Single Cell to Full-Fledged Person
  - **Germinal period (conception to end of the second week)**
    - Implanting in uterine wall; rapid growth
  - **Embryonic period (third to eighth week)**
    - Cell differentiation; formation of major organs and systems begin
    - Heart begins to beat; spinal cord and intestinal systems develop by end of period
  - **Fetal period (third month until birth)**
    - Rapid weight gain; clear sleep-wake cycles; all organs, systems, and structures fully developed at birth

- Brain weight one quarter of adult size
- Infants and Children (Part 2)
- Newborn Reflexes
  - *Reflexes* are automatic responses to stimuli.
  - Some are necessary for survival, whereas others serve no obvious purpose.
  - May fade away in the first weeks and months of life, but resurface as voluntary movements as the infant grows and develops motor control.
- Newborn Reflexes
- Infancy and Child Development (Part 5)
- Sequence of Language Acquisition
  - Across cultures, a “vocabulary explosion” tends to occur at about 2 to 3 years of age.
  - Dependent on
    - Physical development (especially in language processing centers of the brain)
    - Exposure to language
- Sequence of Language Acquisition
- Infancy and Child Development (Part 6)
- Critical Period vs. Sensitive Period for Language
  - In 1970, a social worker in Arcadia, California, discovered 13-year-old “Genie.” Between the ages of 20 months and 13 years, Genie suffered abuse, deprivation, and neglect. She was deprived of physical activity, sensory stimulation, and affection.
  - Efforts to build Genie’s vocabulary had mixed success. She learned basic syntax principles and eventually spoke meaningful sentences. There were, however, certain linguistic skills that could not be mastered.

- Infancy and Child Development (Part 7)
- Piaget and Cognitive Development
  - One of first to suggest infant cognitive abilities
  - Posits that child and adult cognition are different
  - Humans are biologically driven to advance intellectually.
  - Key concepts
    - Schema
    - Assimilation
    - Accommodation
- Infancy and Child Development (Part 8)
- Piaget's Stages of Cognitive Development
  - **Sensorimotor:** Object permanence
  - **Preoperational:** Egocentrism; conservation errors
    - Relish imaginative play
  - **Concrete operational:** Logical thinking in reference to concrete objects and circumstances
  - **Formal operational:** More logical and systematic thinking
- Conservation Tasks
- Infancy and Child Development (Part 9)
- Critics of Piaget's Theory of Cognitive Development
  - Transitions more likely to be continuous rather than distinct cognitive stages
  - Cognitive abilities underestimated
    - Object permanence occurs sooner.
    - Formal operational stage may not be the last stage; distinctions are needed between adolescents and adults of various ages.

- Infancy and Child Development (Part 10)
- Vygotsky and Cognitive Development
  - Interested in how *social* and *cultural* factors affect a child's cognitive development
  - Children are like apprentices to others who are more capable and experienced.
  - Key terms
    - **Scaffolding**
    - **Zone of Proximal Development**
- Infancy and Child Development (Part 11)
- Socioemotional Development
  - Temperament
    - Characteristic differences in behavioral patterns and emotional reactions that are evident from birth
  - High-reactive infants
    - Exhibit much distress with unfamiliar stimuli
  - Low-reactive infants
    - Do not respond to stimuli with great distress
  - Can temperament change?
- Infancy and Child Development (Part 12)
- Socioemotional Development (continued)
  - Temperament
    - **Easy:** Follow regular schedules; easily soothed; transition easily; 40%

- **Difficult:** Erratic schedule; poor transitioning; irritable and unhappy; 10%
- **Slow to warm up:** Not fond of change, but will adapt if given time; 15%
- More than one type of temperament: 35%
- Does temperament influence outcomes later in life?
  - Compared to their less happy peers, happy infants go on to score higher on tests of intelligence in childhood and reach greater academic achievement in young adulthood (Coffey, 2020).
- Infancy and Child Development (Part 13)
- **Mary Ainsworth and Attachment**
  - Refers to degree to which infant feels emotional connection with primary caregivers
  - Assessed using the *Strange Situation* paradigm
    - Secure attachment
    - Avoidant attachment
    - Ambivalent attachment
    - *Disorganized (identified in subsequent research)*
  - Attachments are formed early in childhood, but they have implications for a lifetime.

- **Infancy and Child Development (Part 14)**
- **Critics of the Strange Situation paradigm**
  - Most of early work used mothers; subsequent research should examine attachment to multiple caregivers.
  - Artificial environment created and does not mirror natural environment.
  - Cross-cultural differences not always addressed.
  - Temperament, not just attachment, predisposes infants to react the way they do in this setting.
- **Infancy and Child Development (Part 15)**
- **The Harlows and Their Monkeys**
  - What role does physical contact play in attachment?
  - Infant monkeys were put in cages alone, each with two artificial “surrogate” mothers.
    - One surrogate was outfitted with a soft cloth and thus provided some degree of “contact comfort.”
    - The other surrogate mother was made of wire mesh with no cloth covering, but provided milk.
  - What do you think the monkeys did when given the choice between a wire mesh “mother” that provided milk and a cloth-covered “mother” without milk?
- **Infancy and Child Development (Part 16)**
- **Erik Erikson’s Psychosocial Stages of Development**
  - Proposed that human development is marked by eight psychological stages from infancy to old age
  - Suggested that each stage is marked by developmental task or emotional crisis to be resolved
  - Unsuccessful resolution results in difficulty at next stage
- **Infancy and Child Development (Part 17)**
- **Erikson’s Stages Associated with Infancy and Childhood**
  - Trust versus mistrust (birth to 1 year)
  - Autonomy versus shame and doubt (1 to 3 years)
  - Initiative versus guilt (3 to 6 years)
  - Industry versus inferiority (6 years to puberty)

- Adolescence (Part 1)
- **Adolescence**
  - The transition period between late childhood and early adulthood
  - **Puberty:** The period of development during which the body changes and becomes sexually mature and capable of reproduction
    - Primary sex characteristics
    - Secondary sex characteristics
    - Menarche
    - Spermatarche
      - Menarche typically occurs around age 12; spermatarche has a less definitive age of onset
- Adolescence (Part 3)
- Cognitive Development
  - **Formal operations (Piaget)**
    - Use of deductive reasoning and critical thinking begins
    - Characterized by abstract reasoning, classification, symbol use, thinking beyond moment, and considering many possibilities and hypothetical situations
  - **Adolescent egocentrism**
    - Intense focus on self and feelings of immortality
    - Can lead to increased risky behaviors

- **Acting without thinking**
  - Prefrontal cortex develops more slowly than the limbic system
  - Teens may not see the consequences of reward-seeking activities
  
- Adolescence (Part 4)
- Socioemotional Development in Adolescence
- Conflicts may arise as teenagers search for their **identity**.
- Erikson's Stage of Ego Identity versus Role Confusion
  - Involves adolescent identity formation and trying out new roles
  - Influenced by positive resolution and success at earlier stages
  - Positive resolution = Stronger sense of values, beliefs, and goals
  - Negative resolution = Role confusion
  
- Adolescence (Part 5)
- What Part Do Parents Play in Adolescence?
  - Relationships between teens and parents are generally positive, but conflict does increase during early adolescence.

- Parent–teen struggles often relate to issues of control and parental authority and may revolve around everyday matters such as curfews and chores
- The adolescent is breaking away from their parents, becoming an autonomous person.
  - **Once both parties are more comfortable with newfound autonomy, conflict declines.**
- **Adolescence (Part 6)**
- **Friends Matter**
  - Friendships formed by teens often support the types of behaviors and beliefs parents encouraged during childhood
  - Adolescents do tend to behave more impulsively around peers
  - That said, peers can also have a positive influence
- **Adolescence (Part 8)**
- **How Does Morality Develop?**
  - **Kohlberg's Stages of Moral Development**
    - **Focused on specific changes in beliefs about right and wrong**
    - **Noted that environmental influences and interactions with others support continued moral development**
    - **Proposed three sequential, universal levels of moral development:**
      - **Preconventional moral reasoning**
      - **Conventional moral reasoning**
      - **Postconventional moral reasoning**
- **Kohlberg's Stages of Moral Development**

- Adolescence (Part 10)
- What Role Does Gender Play?
  - **Gender** refers to categories or dimensions of masculinity and femininity based on social, cultural, and psychological characteristics.
  - **Sex** is the classification of someone as male, female, or intersex based on biological characteristics.
  - Society has traditionally embraced a gender binary, yet not everyone identifies with these categories.

- **Gender Identity**

- Adolescence (Part 11)
- Learning Gender Roles
  - Understanding of expected male and female behavior is generally demonstrated by age 2 or 3.
  - We learn these roles through *observational learning* and *operant conditioning*.
    - Observation of those around us or from media representation
    - Receive reinforcement for gender-typical behaviors and punishment for gender-atypical behaviors
  - Gender schemas

- Adolescence (Part 12)
- Biology and Gender
  - Testosterone exposure in utero has been linked with specific play behaviors
  - Male and female infants as young as 3 to 8 months demonstrate gender-specific toy preferences that cannot be explained by socialization or learning
- Gender-Role Stereotypes
  - Take hold around age 3
  - What gender role stereotypes does society have for boys? For girls?
  - What happens if one defies a gender role stereotype?

- Society is more tolerant of girls who go against gender role stereotypes.
- Adolescence (Part 13)
- Androgyny
  - The tendency to cross gender-role boundaries, exhibiting behaviors associated with different genders
  - Ideas of masculinity and femininity vary by culture, which means conceptions of androgyny does as well.
- Transgender (0.4% of U.S. population)
  - People whose gender identity and expression do not match the gender assigned to them at birth
- Transsexual
  - Person who undergoes a social transition from male to female or female to male, often by making changes to the body through surgery and/or medical treatment
- Adulthood (Part 5)
- Cognitive Development in Adulthood
  - **Early adulthood**
    - Measures of aptitude remain stable from early to middle adulthood.
    - Processing speed begins to decline.
  - **Middle and late adulthood**
    - Cognitive function does not necessarily decrease.
      - Practical abilities seem to grow!
    - After age 70, decline is more apparent; some skills become more refined.
      - Crystallized intelligence

- **Fluid intelligence**
  - People who continue to work, both physically and mentally, and remain in good physical shape are less likely to experience **significant cognitive decline**.
- **Adulthood (Part 6)**
- **Socioemotional Development in Adulthood (Erikson)**
  - **Young adulthood:** Intimacy versus isolation
    - Positive resolution involves forming deep, meaningful relationships; failure results in experiencing isolation
  - **Middle adulthood:** Generativity versus stagnation
    - Positive resolution includes feeling like we have made an impact on the next generation; failure manifests as boredom, conceit, or selfishness
  - **Late adulthood:** Integrity versus despair
    - Positive resolution allows us to feel a sense of accomplishment and satisfaction; failure leads to us feeling regret and dissatisfaction
- **Adulthood (Part 7)**
- **Diana Baumrind and Parenting Styles**
  - Authoritarian parenting
  - Authoritative parenting
  - Permissive parenting
  - Uninvolved parenting
- The majority of research on these parenting styles has been conducted in the United States.

- Other factors: home environment, child's temperament and personality, and the parent–child relationship
- Death and Dying
- Kübler-Ross' theory regarding imminent death (2009)
  - Denial
  - Anger
  - Bargaining
  - Depression
  - Acceptance
- The stages she proposed provide a valuable framework for understanding death, but every person responds in a unique way.
- Her theory arose in a Western context so one should be cautious in generalizing to other cultures.
- Death In Different Cultures
- What does death mean to you?
- **Views of death are related to religion and culture.**
  - Every culture has its own collection of ideas about death.
  - Like any developmental step, the experience of death is shaped by countless social, psychological, and biological factors.
- Motivation and Emotion
- Chapter 9
- Motivation (Part I)
- **Motivation:** a stimulus that can direct behavior, thinking, and feeling
  - Motivated behavior is:
    - guided

- energized
- persistent
- Does learning play a role?
  - Use of **incentives**, or associations established between a behavior and its consequences, which then motivates that behavior
  - Hot chocolate was an incentive for Ivonne in her early years of running.
- Motivation (Part 2)
- **Extrinsic Motivation**
  - The drive or urge to continue a behavior because of external reinforcers
  - Behavior may be less effective and results in resentment or disinterest
  - Undermines intrinsic motivation for rewarded activity
- **Intrinsic Motivation**
  - The drive or urge to continue a behavior because of internal reinforcers
  - Behavior likely to include high-quality learning when activities are challenging
- Theories of Motivation (Part I)
- **Instinct Theory**
  - **Instincts** are complex behaviors that are fixed, unlearned, and species-specific.
    - Because of instinct, baby sea turtles head to the ocean after hatching.
    - Early scholars proposed that a variety of instincts motivate human behavior,

yet little evidence exists to support this idea.

- Evolutionary perspective
  - Evolutionary forces influence human behavior.
- Theories of Motivation (Part 2)
- **Drive-Reduction Theory**
  - Behavior driven by need to fulfill basic biological needs (homeostasis)
  - Key Terms
    - **Homeostasis** is the tendency for bodies to maintain constant states through internal controls.
    - **Needs** are physiological or psychological requirements that must be maintained at some baseline or constant state.
    - **Drive** involves a state of tension that pushes us or motivates behaviors to meet a need; there are physiological or psychological requirements that must be maintained at some baseline or constant state.
- Drive-Reduction Theory
- Theories of Motivation (Part 2)
- **Arousal Theory**

- Suggests that humans are motivated to seek an optimal level of arousal
  - **Optimal arousal is not the same for everyone.**
  - *Sensation seekers* seek activities that increase arousal.
  - One cross-cultural study found that sensation seeking generally rises during the teen years, reaches a maximum around age 19, and then diminishes in the twenties (Steinberg et al., 2018).
- Arousal Theory
- Theories of Motivation (Part 4)
- **Maslow's Hierarchy**
- Hierarchy of needs
  - A continuum of needs that are universal and ordered in terms of the strength of their associated drives
    - **Physiological needs**
    - **Safety needs**
    - **Love and belongingness needs**
    - **Esteem needs**
- Theories of Motivation (Part 5)
- Maslow's Hierarchy (continued)
  - **Self-actualization**
    - **The need to be one's best and strive for one's fullest potential**

- **Self-transcendence**
  - The desire to go beyond our ordinary human level of consciousness and experience oneness with the greater whole, the higher truth, whatever that may be
  - When Muslim families observe Ramadan, they engage in fasting where basic needs (food and water) are put on hold for something more transcendent.
- Maslow's hierarchy suggests a certain order of needs, but this sequence is not set in stone.

- Hierarchy of Needs
- Theories of Motivation (Part 6)
- **Self-Determination Theory**
  - Deci and Ryan: Suggest humans born with three universal needs that drive them in the direction of optimal functioning

- *Need for competence*: Reaching goals through mastery of daily responsibilities
- *Need for relatedness*: Creating meaningful and lasting relationships
- *Need for autonomy*: Managing behavior to reach personal goals

- Theories of Motivation (Part 7)

- **Murray**

- Humans are motivated by 20 fundamental human needs.
- One is the need for achievement (n-Ach), or drive, to reach attainable and challenging goals, especially during competition.

- **McClelland and colleagues**

- Some people are motivated by the need for power (n-Pow).
- Those with high levels of n-Pow enjoy dominating others but hate being dominated themselves.

- *More than 70% of people in the United States use social media; what needs might they be trying to satisfy?*

- Sexuality (Part I)

- Sexuality

- A dimension of human nature encompassing everything that makes us sexual beings: sexual activities, attitudes, and behaviors
- Much of what we know about the sexual response comes from the groundbreaking work of Masters and Johnson
- Physiological sexual response cycle
  - Excitement
  - Plateau

- Orgasm
- Resolution
- Sexuality (Part 7)
- Alfred Kinsey and the study of sexual behavior
  - Survey data from 5,300 White males and 5,940 White females
  - Key findings: both men and women masturbated and had experiences with premarital sex, adultery, and sexual activity with someone of the same sex.
  - Limitations include failure to obtain a representative sample
- Sexuality (Part 9)
- Sexual Dysfunction
  - A significant disturbance in the ability to respond sexually or to gain pleasure from sex
  - About 43% of women and 31% of men suffer from some sort of sexual dysfunction
  - Major categories of sexual dysfunction
    - Desire
    - Arousal
    - Orgasm
    - Pain
- Hunger (Part I)
- **Stomach and hunger: Cannon and Washburn's experiment**
  - Demonstrated stomach plays a role in hunger
- **Body sugar and hunger**

- The stomach and liver send signals to the brain when glucose levels fall—a sense of hunger is initiated.
- **Hypothalamus and hunger**
  - The hypothalamus regulates hungry feelings.
    - Lateral hypothalamus
    - Ventromedial hypothalamus
- Hunger (Part 4)
- Obesity
  - About 42% of U.S. adults are obese (BMI > 30); racial disparities exist in obesity
  - **Set point:** Stable weight that is maintained despite variability in exercise and food intake
    - **Set point theory criticism:** the importance of social and environmental influences is ignored.
  - **Settling point:** Set weight loss and gain in most humans is related to the patterns of diet and physical activity that people “settle” into as habits.
    - These are based on the interaction of genetic dispositions, learning, and environmental cues to behavior.
      - The heritability of BMI is around 65% (or higher).
- Hunger (Part 5)
- Environmental Factors Related to Obesity
  - Inadequate sleep is linked to weight problems

- Positive correlation between screen time (using a tablet, smartphone, computer, or television) and weight gain
- **Secret to Slimming Down?**
  - Eat less and move more
- **Emotion (Part 1)**
- **Emotions**
- Psychological state
- Subjective or inner experience, physiological component, and behavioral expression
- Initiated by a stimulus
- More likely to motivate action
- **Moods**
- Long-term emotional states
- Less intense than emotions
- Lack distinct beginning and end
- **Emotion (Part 2)**
- **Language and Emotion**
  - The English language contains 200 words to describe emotions.
  - Words and emotions do not correspond directly, but they are linked.
- **Dimensions of Emotion**
  - Emotions can be compared and contrasted according to their valence (how pleasant or unpleasant they are) and their arousal level.
- **Theories of Emotion (Part 1)**
- **James–Lange theory of emotion**
  - **A stimulus initiates physiological reaction and/or a behavioral**

reaction, and this leads to an emotion.

- Put differently, changes in the body and behavior pave the way for emotions
- Each emotion contains a distinct physiological fingerprint.
- Criticism
  - Theory does not fully explain emotion. *Why?*
- Theories of Emotion (Part 2)
- **Cannon–Bard theory**
  - Most people would be terrified to see a mountain lion while hiking.
  - Does the feeling of fear come before or after the heart starts racing and the body flinches?
  - According to the Cannon–Bard theory of emotion, everything happens simultaneously: the

emotional reaction, physiological changes, and a behavioral response.

- Critics suggest the thalamus may be unable to carry out this processing on its own
- Theories of Emotion (Part 3)
- **Schachter–Singer theory**
  - The experience of emotion is the result of physiological arousal and a cognitive label for this physiological state.
- **Criticism**
  - The theory overstates the link between physiological arousal and the experience of emotion.
  - People can experience an emotion without labeling it, especially if neural activity sidesteps the cortex, heading straight to the limbic system.

- Theories of Emotion (Part 4)
- **Lazarus**
  - Emotions are the result of the way people appraise or interpret the interactions they have in their environment.
  - Emotions are adaptive and aid in coping.
  - Appraisal causes an emotional reaction.
- **Criticism**
  - The association between emotion and cognitive activity is complex and bidirectional.
  - Thinking is not always involved when emotions are experienced.
  - Emotions can precede thought and may even cause them (Zajonc).

- Theories of Emotion (Part 5)
- Types of Emotions (Part 1)
- Basic Emotions
  - Happiness
  - Sadness
  - Surprise/Fear
  - Disgust/Anger
- These types of feelings are considered basic emotions because people all over the world experience and express them in similar ways; they appear to be innate and have an underlying neural basis.
- Unpleasant emotions have survived throughout our evolutionary history and are more prevalent than positive emotions.
- Types of Emotions (Part 2)
- The Biology of Fear
  - The **amygdala** is central to the fear experience.
  - *What happens if the amygdala is not working?*
- Pathways to Fear
  - With fear-provoking situation
    - Direct route: Thalamus → Amygdala
    - Indirect route: Thalamus → Cortex
    - Other parts of brain
      - Sympathetic nervous system and pituitary gland
- Types of Emotions (Part 3)
- **Positive psychology**
  - Focuses on the study of positive emotions, positive character traits, and enabling institutions

- Emphasizes human strengths and virtues
- Has goal of well-being and fulfillment
- **Flow**
  - A state where a person is fully absorbed and intensely focused on a task
  - Can be achieved by being fully present and in the moment
- Types of Emotions (Part 4)
- The Biology of Happiness
  - Happiness has heritability estimates between 35% and 50% and as high as 80% in longitudinal studies.
  - The biological basis may include a *set point* influenced by temperament and tends to fluctuate around a fixed level.
- Increasing happiness
  - People tend to habituate to new feelings of happiness.
  - Seeking contentment is better than focusing on happiness.
- In A Good Place
- When does Ivonne feel happiest? While running, of course!

- The greatest runs are those that take her through the beautiful outdoors. “My breathing connects me to nature.”
- *How can you apply principles from this chapter to enhance your own well-being?*
- Personality
- Chapter 10
- What Is Personality?
- **Personality**
- The unique, core set of characteristics that influence the way one thinks, acts, and feels and that are relatively consistent and enduring throughout the life span
- Not the same as *character*
- Temperament
  - Distinct patterns of emotional reactions and behaviors observed early in life
  - Remains somewhat stable across the life span but can be molded by the environment
- An important, stable aspect of personality
- Theoretical Perspectives on Personality
- Psychoanalytic Theories of Personality (Part I)

- Psychoanalytic Theories: Overview
  - Childhood is the prime time for personality development.
  - We are greatly influenced by processes of which we are unaware (e.g., internal conflicts, aggression, sexual urges).
  - **Psychoanalysis** is derived from psychoanalytic theory.
  - It is important to note that Freud's ideas were (and are) controversial and lack scientific support.
- Psychoanalytic Theories of Personality (Part 2)
- Freud's Three Levels of Consciousness (*Topographical model*)
  - **Conscious:** the state of being aware of oneself, one's thoughts, and/or the environment
  - **Preconscious:** mental activities outside your current awareness but that can be brought easily to your attention
  - **Unconscious:** level of consciousness outside of awareness, which is difficult to access without effort or therapy
- Psychoanalytic Theories of Personality (Part 3)
- Freud's Structural Model of the Mind
  - **Id:** the most primitive structure of the mind, the activities of which occur at

the unconscious level and are guided by the **pleasure principle**

- **Ego:** the structure of the mind that uses the reality principle to manipulate situations, plan for the future, solve problems, and make decisions to satisfy the needs of the id
    - Use of the reality principle to negotiate between the id and the environment.
  - **Superego:** the structure of the mind that guides behavior to follow the rules of society, parents, or other authority figures
- Psychoanalytic Description of the Mind
  - Psychoanalytic Theories of Personality (Part 4)
  - **Ego defense mechanisms** distort our perceptions and memories of the “real” world, without our awareness, to reduce the anxiety created by the conflicts among the id, ego, and superego.

- They are not necessarily a bad thing, as they reduce anxiety; but we need to be careful not to overuse them.
- **Repression**
  - The way in which the ego moves uncomfortable thoughts, memories, or feelings from the conscious level to the unconscious
- Psychoanalytic Theories of Personality (Part 5)
- Other Defense Mechanisms (from more → less adaptive)
  - Sublimation
  - Identification
  - Displacement
  - Repression
  - Rationalization
  - Projection
  - Denial
- Psychoanalytic Theories of Personality (Part 6)
- Freud's Psychosexual Stages of Development
  - According to Freud, humans pass through psychosexual stages of

development, from birth to adulthood, each of which has an erogenous zone as well as a conflict that must be dealt with.

- Oral
  - Anal
  - Phallic
  - Latency period
  - Genital
- Psychoanalytic Theories of Personality (Part 7)
  - Psychoanalytic Theories of Personality (Part 8)
  - Oral Stage of Psychosexual Development
    - Begins at birth and lasts until 1 to 1.5 years old
    - The erogenous zone is the mouth.
    - The conflict during this stage generally centers on weaning.
      - Weaning too early or too late can have long-term consequences for personality development.
      - Oral fixation: smoking, nail biting, excessive talking, and increased alcohol consumption
  - Psychoanalytic Theories of Personality (Part 9)
  - Anal Stage of Psychosexual Development
    - 1 or 1.5 to 3 years old
    - The erogenous zone is the anus.

- The conflict during this stage centers on toilet training.
  - **Too harsh: anal-retentive personality**  
(rule bound, stingy)
  - **Too lenient: anal-expulsive personality**  
(chaotic, destructive)
- **Psychoanalytic Theories of Personality (Part 10)**
- **Phallic Stage of Psychosexual Development**
  - Ages 3 to 6 years old
  - The erogenous zone is the genitals.
  - **Oedipus complex:** the attraction a boy feels toward his mother, along with the resentment or envy directed toward his father
  - **Electra complex:** the attraction a girl feels toward her father, along with jealousy and anger toward her mother
    - **Penis envy**
  - Conflicts are successfully resolved through identification.
  - Fixation can lead to promiscuity, flirtation, vanity, overdependence, bravado, and an increased focus on masturbation
- **Psychoanalytic Theories of Personality (Part 11)**
- **Latency Period**
  - Age 6 to puberty
  - No erogenous zone, conflict, or fixation
- **Genital Stage of Psychosexual Development**
  - Begins at puberty
  - Erogenous zone is once again the genitals, but now in association with relationships
  - Often become attracted to partners who resemble the opposite-sex parent
- **Psychoanalytic Theories of Personality (Part 12)**
- **Neo-Freudians**
  - Alfred Adler

- Humans are not just pleasure seekers, but conscious and intentional in their behaviors.
- We are motivated by the need to feel superior; this drive originates in childhood when we realize we are dependent on and inferior to adults.
- His theory of individual psychology focuses on each person's unique struggle with feelings of inferiority.
  - Inferiority complex: feelings of incompetence, vulnerability, and powerlessness
  - Influence of birth order and differential environmental pressures
- Believe It or Not: How Birth Order May Affect Your Personality
- Popular stereotypes about birth order and personality
  - Firstborns are conscientious and high achieving. They play by the rules, excel in school, and become leaders in the workforce.
  - Middle children tend to get lost in the shuffle, but they learn to be self-sufficient.
  - The youngest children, favored and coddled by their parents, grow up to be gregarious and rebellious.
- Correlational research exists to support these relationships, yet correlation does not equal causation.

- When controlling for confounding variables, birth order does not strongly correlate to the presence of any specific personality characteristics.
- Psychoanalytic Theories of Personality (Part 13)
- Neo-Freudians (continued)
  - Carl Gustav Jung
    - Analytic psychology
    - **Collective unconscious:** Universal experiences of humankind passed from generation to generation, including memories and **archetypes**
    - **Personal unconscious:** Similar to preconscious and unconscious
  - Karen Horney
    - Role of child–caregiver relationship emphasized
    - People use three strategies:
      - Moving toward people
      - Moving away from people
      - Moving against people
- Humanistic Theories (Part 2)
- Abraham Maslow
  - Believed that psychologists should study human creativity, growth, and healthy functioning, not just mental illness and maladaptive personality traits
  - **Self-actualizers:** people who are continually seeking to reach their fullest potential
- Humanistic Theories (Part 3)
- Humanistic Theories (Part 4)
- Carl Rogers
  - Developed *client-centered therapy*
  - We all have an innate urge to move toward situations and people that will help us grow and away from those that could inhibit growth.
  - Importance of **self-concept**
    - Problems occur when we experience incongruence between our self-concept and our lived experiences.
    - Our **ideal self** is the version of the self we aspire to be.
  - **Unconditional positive regard**

- Social Learning Perspectives of Personality (Part 1)
- Julian Rotter: Looking Beyond Behavior
  - “Personality is the interaction between a person and his or her environment and is dependent on a particular individual’s learning experiences and life history”
  - Some aspects of personality cannot be directly observed
    - Locus of control: internal or external
    - Expectancy: predictions about consequences or outcomes of behaviors
- Social Learning Perspectives of Personality (Part 2)
- Albert Bandura’s Social-Cognitive Perspective
  - Personality results from relationships and other environmental factors (social) and patterns of thinking (cognitive).
  - **Self-efficacy**: beliefs about our ability and effectiveness in reaching goals
  - **Reciprocal determinism**: multidirectional interactions among cognition, behaviors, and the environment
- Trait Theories of Personality (Part 1)
- **Traits**: the relatively stable properties that describe elements of personality
- **Trait theories**: theories that focus on personality dimensions and their influence on behavior; can be used to predict behaviors
  - Allport
  - Cattell
  - Eysenck
  - Big Five
- Trait Theories of Personality (Part 2)
- Gordon Allport
  - One of the first trait theorists who created a comprehensive list of traits to be used to operationalize terminology used in personality research

- Started with 17,953 words → 4,504 traits
  - Personal traits (primary focus)
  - Temporary states
  - Social evaluations
  - Metaphorical and doubtful words
- Trait Theories of Personality (Part 3)
- Raymond Cattell
  - Grouped list of personality traits into two major categories:
    - Surface traits
    - Source traits
  - With factor analysis, a list of 16 personality factors was produced, considered primary source traits.
    - Sixteen Personality Factor Questionnaire (16PF)
- Trait Theories of Personality (Part 4)
- Hans Eysenck
  - Proposed three dimensions of personality
    - Introversion–extraversion
    - Neuroticism
    - Psychoticism
  - Worked to find biological basis for dimensions
  - High reactivity related to the reticular formation
- Although Eysenck contributed a great deal to our understanding of personality, he has been accused of serious scientific misconduct.
- Trait Theories of Personality (Part 5)
- The Big Five/Five-Factor Model

- McCrae and Costa proposed five dimensions to describe personality (OCEAN):
  - **O**penness to experience
  - **C**onscientiousness
  - **E**xtraversion
  - **A**greeableness
  - **N**euroticism
- Empirical support for this model has been established using cross-cultural testing.
- The Five-Factor Model of Personality
- Personality Assessment (Part 1)
- Two categories of personality tests
  - Subjective: based on intuition, clinical judgment, opinion, or interpretation
  - Objective: administered and evaluated using standardized procedures
- Are personality tests reliable and valid?
  - **Reliability**: the degree to which assessment produces stable and consistent results
    - Test-retest reliability
    - Interrater reliability
  - **Validity**: the degree to which a test measures what it is intended to measure
    - Predictive validity
- Personality Assessment (Part 2)
- Interviews
  - Unstructured
  - Semi-structured
  - Structured
- Strengths
  - Allows view of client in natural, realistic setting
- Weaknesses

- May involve lying, misrepresenting, sharing distorted memories to interviewer
- May be influenced by interviewer bias
- **Personality Assessment (Part 3)**
- **Projective Personality Tests**
  - Assessments that present stimuli without a specified meaning to test takers, whose responses can then be interpreted to uncover underlying personality characteristics
  - Rorschach Inkblot Test
  - Thematic Apperception Test (TAT)
- **Personality Assessment (Part 4)**
- **Rorschach Inkblot Test**
  - Most well-known projective personality test
  - Developed by Rorschach and updated by Exner in 1970
  - Responses to inkblot systematically compared with answers given by others who have known personality characteristics and diagnoses
- **Thematic Apperception Test (TAT)**
  - Development by Murray and colleagues
  - Assumes that the test taker will project underlying conflicts onto the ambiguous stimuli of the picture, with the job of the test administrator being to unearth them
- **Personality Assessment (Part 5)**
- The best-known projective tests, the Thematic Apperception Test (TAT) and the Rorschach Inkblot Test, are both conducted in the same way (Lilienfeld et al., 2005)

- The test administrator presents a series of picture cards, one at a time, then records the participant's responses.
- The administrator also notes behaviors such as gestures, tone of voice, and facial expressions.
- **Personality Assessment (Part 7)**
- **Objective Personality Tests**
  - Use a standard set of questions with answer choices (true/false, multiple choice, circle the number) and have clear scoring instructions that are identical for everyone taking the test
  - Minnesota Multiphasic Personality Inventory (MMPI-2)
  - 16 Personality Factor Questionnaire (16PF)
  - Myers-Briggs Type Indicator (MBTI)
- **Personality Assessment (Part 8)**
- **Minnesota Multiphasic Personality Inventory (MMPI-2)**
  - Most commonly used objective personality test developed to identify disorders and abnormal behaviors
  - Often used to inform decisions about custody or other legal issues and a variety of nonclinical settings
  - Contains 10 clinical scales as well as validity scales
- **Myers-Briggs Type Indicator (MBTI)**
  - Personality types related to four dimensions: extraversion versus introversion; sensing versus intuiting; thinking versus feeling; judgment versus perception

- **Social Psychology**
- **Chapter 11**
- **What Is Social Psychology? (Part 1)**
- **Social Psychology**
  - The study of human cognition, emotion, and behavior in relation to others

- **How does social psychology differ from sociology?**
  - Social psychology explores the way individuals behave, think, and feel in relation to others and groups.
  - Sociology centers on examining the groups themselves—their societies, cultures, and subcultures.
  - Methods used to conduct research also differ between the two fields.
- **What Is Social Psychology? (Part 2)**
- **Research Methods in Social Psychology**
  - Same general research methods as other psychologists, but often with deception
    - *Why is deception sometimes necessary?*
      - Often involves confederates
      - In most cases, debriefing occurs.
      - Approval by the Institutional Review Board (IRB)
- **Social Cognition (Part 1)**
- **Social Cognition**
  - The way people think about others, attend to social information, and use this information in their lives, both consciously and unconsciously
- **One critical component of social cognition is the process of making **attributions**, or interpreting the behavior of others.**
  - Simply put, why do people do the things they do?
  - *In the case of Dennis and Alexa, Alexa was left with the question of why it took Dennis so long to text for a second date?*
- **Social Cognition (Part 2)**
- **Three dimensions of attributions**
  - Controllable–uncontrollable
    - **Situation: Alexa was 15 minutes late for her first date with Dennis.**
  - Stable–unstable

- Situation: On date #2, Dennis proved himself to be a good cook.
- Internal–external
  - Situation: Alexa had bad luck meeting guys on Tinder before she met Dennis.
- Social Cognition (Part 3)
- Errors in Attribution
  - **Fundamental Attribution Error**
    - The tendency to overestimate the degree to which the characteristics of an individual are the cause of an event, and to underestimate the involvement of situational factors
    - Put differently, favoring *dispositional attributions* over *situational attributions*
    - Example: Assumptions about the causes of poverty
- Social Cognition (Part 4)
- Errors in Attribution
  - **Just-World Hypothesis**
    - The tendency to believe the world is a fair place and individuals generally get what they deserve

- *Why do people believe in the just-world hypothesis?*
- Social Cognition (Part 5)
- Errors in Attribution
  - **False Consensus Effect**
    - The tendency to overestimate the degree to which others think or act like we do
      - *I love Taylor Swift, as does everyone else!*
      - *I think the flu shot is dangerous, and most of my friends agree.*
    - We seem to make this mistake because we have an overabundance of information about ourselves and often limited information about others.
- Social Cognition (Part 6)
- Errors in Attribution
  - **Self-Serving Bias**
    - The tendency to attribute our successes to personal characteristics and our failures to environmental factors
- Social Cognition (Part 7)
- **Attitudes**

- The relatively stable thoughts, feelings, and responses one has toward people, situations, ideas, and things
- Attitudes have three components:
  - Cognitive
  - Affective
  - Behavioral
- Think Critically: Something Doesn't Feel Right
- **Cognitive Dissonance**
  - A state of tension that results when behaviors are inconsistent with attitudes
- In a classic study by Festinger and Carlsmith, participants who were paid more money than were others to complete a tedious task were less inclined to change their attitude to match their claim that they enjoyed the task.
  - *"I said I liked the boring task because I got paid \$20, not because I actually liked it."*
- Social Influence (Part 1)
- **Social Influence**
  - How a person is affected by others as evidenced in behaviors, emotions, and cognition
  - Expectations are a powerful, yet unspoken, form of social influence.
    - Rosenthal & Jacobson (1966, 1968)
    - *Self-fulfilling prophecy*
- Social Influence (Part 2)
- **Persuasion**
  - Intentionally trying to make people change their attitudes and beliefs, which may lead to changes in their behaviors
  - Carl Hovland's Three Factors
    - Source

- Message
- Audience
- Social Influence (Part 3)
- Source
  - Credibility dependent on perceived expertise and trustworthiness
  - Familiarity and closeness of the source matter
- Message
  - Logical and to the point
  - Fear-inducing information can be persuasive, but can also backfire.
- Audience
  - Children more likely than middle-age adults to be persuaded
  - Emotional state
  - Mental focus and ability to process the message
- Social Influence (Part 4)
- **Elaboration Likelihood Model**
  - Proposes that people are persuaded in different ways
  - Information processed along one of two pathways:
    - Central route
    - Peripheral route
  - If you want to persuade as many people as possible, use both routes.
- Social Influence (Part 5)
- **Compliance**
  - Changes in behavior at the request or direction of another person or group, who in general does not have any true authority
  - Often occurs outside of our awareness
- Social Influence (Part 6)
- **Conformity**
  - The tendency to modify behaviors, attitudes, beliefs, and opinions to match those of others
  - Sometimes we conform to **norms**, or standards of the social environment.
  - Generally unspoken (unlike compliance)

- We often conform to fit in and belong.
- **Social Influence (Part 7)**
- **Asch's Conformity Study**
  - Each participant sat at a table with a small group of confederates and were told to look at two cards: The first was marked with one vertical line, the standard line, and the second with three vertical lines of different lengths, marked 1, 2, and 3.
  - The group was then instructed to announce, one at a time going around the table, which of the three lines was closest in length to the standard line.
- **Social Influence (Part 8)**
- **Three reasons for conformity:**
  - Normative social influence
  - Informational social influence
  - Reference group
- **Situational factors that increase conformity**
- **Social Influence (Part 9)**
- **Obedience**
  - Changing behavior because we have been ordered to do so by an authority figure
- **Milgram's obedience study**
  - *How far would people go in terms of punishing others when urged to do so by an authority figure?*
  - Paradigm has been replicated cross-culturally, and the findings have remained fairly consistent.
  - Ethical concerns
- **Social Influence (Part 10)**
- **Factors that influence the likelihood of obedience**
  - the legitimacy of the authority figure
  - the physical distance between the authority figure and the participant
  - the physical distance between the learner and the participant and
  - the presence of other teachers
- **Summary: Concepts of Social Influence**
- **Groups (Part 1)**

- Better Together?
  - **Social facilitation**
    - The tendency for the presence of others to improve personal performance when the activity is fairly uncomplicated and a person is adequately prepared
- Two Heads Aren't Always Better
  - **Social loafing**
    - The tendency for group members to put forth less than their best effort when individual contributions are too complicated to measure
- Groups (Part 2)
- **Diffusion of Responsibility**
  - The sharing of duties and responsibilities among all group members that can lead to feelings of decreased accountability and motivation
- *How can you reduce social loafing in your work groups?*
  - Have members designate and take responsibility for tasks.
  - Have members submit parts of the assignment before the due date.
  - Ensure all members participate in a group presentation.
  - Use technology (e.g., Skype, Zoom) to work together.
  - Identify a task that each person can perform with confidence and success.
- Groups (Part 3)
- **Deindividuation**
  - The diminished sense of personal responsibility, inhibition, or adherence to social norms that occurs when group members are not treated as individuals
  - Diener's Halloween study

- Where do we see deindividuated behavior in adults?
  - Sporting events
  - Internet “trolls”
- Groups (Part 4)
- More People, More Problems?
  - **Group polarization**
    - The tendency for a group to take a more extreme stance than originally held after deliberations and discussion
  - **Groupthink**
    - The tendency for group members to maintain cohesiveness and agreement in their decision making, failing to consider possible alternatives and related viewpoints
    - Throughout history, many disasters such as the sinking of the Titanic and the Challenger explosion have been linked to groupthink.
    - More recently, groupthink may have contributed to the spread of misinformation during the COVID-19 pandemic.
- Groups (Part 5)
- **Bystander Effect**

- The tendency for people to avoid getting involved in an emergency they witness because they assume someone else will help
- Partly a result of the *diffusion of responsibility*
- The case of Kitty Genovese
- More recent research suggests people will help as long as their resources allow for it.
  - In extremely dangerous situations, people are *more* likely to help even if there is more than one person watching.
- Aggression (Part 1)
- **Aggression**
  - Intimidating or threatening behavior or attitudes intended to hurt someone
  - **Microaggressions:** subtle, sometimes unconscious, statements or behaviors that reveal a prejudice against a certain group of people
- Aggression (Part 2)
- Aggressive tendencies seem to be rooted in our genes.
  - Identical twins are more likely than fraternal twins to share aggressive traits.
  - High levels of testosterone and low levels of serotonin correlate with aggression.
- **Frustration–Aggression Hypothesis**
  - Suggests that aggression may occur in response to frustration
- Aggression (Part 3)
- Aggression and Gender
  - Males show more direct aggression.
  - Females show more relational aggression.
  - *Why might women favor relational aggression over direct aggression?*
- Many environmental factors seem to set the stage for aggression.
  - Childhood abuse, exposure to trauma
  - Such events could potentially trigger **epigenetic changes** that can alter the expression of genes.
- Stereotypes and Discrimination (Part 1)

- **Stereotypes**
  - Conclusions or inferences we make about people who are different from us based on their group membership, such as race, religion, age, or gender
  - Often negative, but can be positive
- **Groups and Social Identity**
  - In-group
  - Out-group (vulnerable to becoming **scapegoats**)
  - Social identity
- **Stereotypes and Discrimination (Part 2)**
- **Discrimination**
  - Showing favoritism or hostility to others because of their affiliation with a group
  - Can stem from **ethnocentrism**, or seeing the world only from the perspective of one's own group
- **Prejudice**
  - Holding hostile or negative attitudes toward an individual or group
  - While overt, explicit biases may be declining, **implicit biases** still exist.
- **Stereotypes and Discrimination (Part 3)**
- **How Can Implicit Bias Be Reduced?**
  - Try to view members of an out-group in a positive light.
  - When it comes to race, remember that labels like Black and White are social categories rather than biological distinctions.
  - Prejudice may diminish when people are forced to work together toward a common goal. (*jigsaw classroom*)
- **Stereotypes and Discrimination (Part 4)**
- **Stereotype Threat**
  - A “situational threat” in which individuals are aware of others’ negative expectations, which leads to a fear of being judged or treated as inferior

- It can actually undermine performance in a specific area associated with the stereotype.
- A person does not have to believe the stereotype is accurate in order to be impacted.
- There is a great deal of variation in how people react to stereotype threats.
- **Summary: Thinking About People**
- **Believe It or Not: The Stanford “Prison”**
- 1971 experiment in which 21 male college students were selected to play the roles of prisoners and guards in basement “prison”
- The behavior of some guards and prisoners became so disturbing that the 2-week experiment was stopped after just 6 days.
- **Social Roles**
  - The positions we hold in social groups, and the responsibilities and expectations associated with these roles
- **Prosocial Behavior (Part I)**
- **Altruism**
  - Helping others with no expectation of something in return
  - A major component of altruism is *empathy*, the ability to recognize and understand another’s emotional point of view.
- **Are toddlers altruistic?**
  - Many 18-month-old children demonstrate helping behavior.
  - Rather than helping just anyone, they show a preference for those who are familiar and those “who have been kind to them in the past.”
  - Findings from twin studies suggest “considerable heritability” of altruistic tendencies.
- **Across the World: Pandemic Responses and Culture**

- Why do some people ignore public health guidelines, putting themselves and others at risk for serious illness?
  - In individualistic cultures, such as the United States, people are looking out for themselves and “appeals for altruism” may not work.
  - In collectivist cultures, such as Japan, there is a stronger desire to conform to social norms, such as mask wearing during the COVID-19 pandemic.
- Interpersonal Attraction (Part 1)
- **Interpersonal Attraction**
  - The factors that lead us to form friendships or romantic relationships with others
  - Important factors include:
    - **Proximity**
      - Repeated interactions can bring us closer due to the **mere exposure effect**
    - **Similarity**
    - **Physical attractiveness**
- Interpersonal Attraction (Part 2)
- **Beauty Perks**
  - Generally speaking, physically attractive people seem to have more opportunities.
  - **Halo effect**
    - The tendency to assign excessive importance to one dimension of a person
  - However, attractive people don't always inspire positive reactions.

- One study suggests that “other women may respond with hostility and resentment when exposed to women who are more beautiful than themselves,” especially when those attractive women wear makeup (DelPriore, Bradshaw, & Hill, 2018, p. 16).
- Interpersonal Attraction (Part 3)
- Sternberg’s Theory of Love
  - There are different kinds of love resulting from combinations of three elements: passion, intimacy, and commitment.
  - The ideal form, consummate love, combines all three elements.
  - Relationships change over time, reflecting a different balance of the three elements of love.
- Interpersonal Attraction (Part 4)
- Investment Model of Commitment
  - Decisions to stay together or separate are based on happiness with the relationship, ideas of what life would be like without it, and personal investment.
    - Helps explain why people stay in relationships that are unsatisfying or unhealthy
  - The ability to deal with relationship troubles may depend somewhat on perceptions of what the relationship represents.
- Stress and Health
- Chapter 12
- An Introduction to Stress (Part I)

- **STRESS AND STRESSORS**
  - **Stress**
    - Response to perceived threats or challenges resulting from stimuli or events that cause strain
  - **Stressors**
    - Stimuli that cause physiological, psychological, and emotional reactions at any time
    - Can vary according to gender, age, and personality

*Stress is the response; stressors are the cause.*

- An Introduction to Stress (Part 3)
- **Distress**
  - The stress response to unpleasant or undesirable stressors
  - Associated with increased heart rate, stiffness in muscles, and fatigue
- **Eustress**
  - The stress response to agreeable or positive stressors
  - Characterized by heightened energy and “butterflies in the stomach”
  - Work groups experiencing eustress demonstrate more dedication and engagement.

- An Introduction to Stress (Part 4)
- Measuring Major Life Events
  - **Social Readjustment Rating Scale (SRRS)**
    - Participants are asked to read through a list of events and experiences, and determine which happened during the previous year and how many times they occurred.
    - A score is then calculated based on the severity ratings and frequency of those events.
    - A positive correlation exists between life events and health problems.
- Chronic Stress (Part 1)
- **Chronic stress**
  - A long-term or continuous state of nervous arousal where an individual perceives that demands are greater than the ability to meet them
- HIV and AIDS
  - Approximately 1.2 million people in the United States have HIV, and about 1 in 7 are not aware they are infected.
  - *What comes to mind when you think of stressors linked to HIV?*
- Chronic Stress (Part 2)
- Poverty
  - Before the coronavirus pandemic, about 1 in 10 people in the United States lived in poverty.

- The poverty threshold for a family with two adults and two children is **\$25,926**.
  - *What are some stressors experienced by people living in poverty?*
  - The cycle of poverty is difficult to break, so these stressors often persist across generations.
- Chronic Stress (Part 3)
- Acculturative Stress
  - Stress associated with adjusting to a new way of life
  - Acculturation can result in changes to language, values, cultural behaviors, and sometimes even national identity.
  - Various responses to acculturative stress:
    - Assimilating
    - Separating
    - Integrating
- Across the World: The Stress of Starting Anew
- A familiarity with language appears to play a key role in determining acculturative stress levels.
  - Without verbal communication, social interactions are limited.
- Influences on acculturative stress levels:

- English proficiency
- Degree of familiarity with the new culture
- Discrimination
- Social support
- **Hassles, Uplifts, and Conflicts (Part 1)**
- **Daily hassles**
  - Minor, everyday problems that can act as stressors
- **Uplifts**
  - Experiences that are positive and have the potential to make one happy
- **The Hassles and Uplifts Scale (DeLongis, Folkman, & Lazarus, 1988)**
  - Used to explore the relationship between stress and illness
    - **Significant link between hassles and health problems**
  - Recent research reported a link between daily stressors and health problems and an increased risk of catching contagious diseases.
- **Hassles, Uplifts, and Conflicts (Part 2)**
- **Conflicts can serve as stressors.**
  - **Approach–approach conflict:** occurs when two or more favorable alternatives are pitted against one another
  - **Approach–avoidance conflict:** occurs when you face a choice or situation that has both favorable and unfavorable characteristics
  - **Avoidance–avoidance conflict:** occurs when you are faced with two or more alternatives that are unattractive
- **Stress and Your Health (Part 2)**
- **Hypothalamic-Pituitary-Adrenal System (HPA)**
  - When a stressful situation arises, the hypothalamus alerts the pituitary gland, prompting it to send signals to the adrenal cortex, which secretes corticosteroids such as cortisol.
  - These hormones summon the immune system to fend off a threat and reduce the amount of energy used for nonessential activities.
  - The HPA system responds to a stressor in the same way it would to a pathogen—by mobilizing a defense response.

- Short-Term Responses to Stress
- General Adaptation Syndrome
- A specific pattern of physiological reactions to stressors that includes the alarm stage, resistance stage, and exhaustion stage
  - In the **alarm stage**, short-term responses are activated, giving us energy to combat a threat.
  - In the **resistance stage**, resources remain mobilized, and we continue to cope with the stressor.
    - **Diseases of adaptation: hypertension, arthritis**
  - Eventually, we enter the **exhaustion stage**, when we become weak and susceptible to illness, and are less able to cope with the stressor (Selye, 1956).
- Cortisol
- The stress hormone cortisol is released by the adrenal cortex and plays a key role in mobilizing the body to react to stressful situations.
- Prolonged exposure to cortisol can negatively impact both children and college students.
  - Infants born to mothers subjected to natural disasters, trauma, and other extreme stressors are more likely to be premature, have low birth weights, exhibit behavioral difficulties, and perhaps even show problems with cognitive development.
  - One study found that students with a good working memory but high math anxiety tend to perform worse in math when cortisol levels are high.
- How Can Stress Make You Sick? (Part 3)
- Heart Disease
  - For people who became unemployed as a result of Hurricane Katrina, the risk of experiencing a “cardiometabolic event” jumped fivefold in the following 5 years.

- “Social-evaluative threats,” or concerns about being judged by others, are associated with increases in blood pressure and consequently an elevated risk of heart disease.
- **Psychoneuroimmunology**
  - The field that examines relationships among psychological factors, the nervous system, and immune system functioning
  - Research from this field has found that childhood stress, in particular, may leave the “biological scar” of inflammation.
- **Burnout**
- Kaynen seems to have the perfect disposition for nursing.
  - He is compassionate yet able to set aside his emotions during emergencies, and he is not easily flustered.
  - Not everyone deals with the stress of the job so easily
- **Burnout**
  - Emotional, mental, and physical fatigue that results from repeated exposure to challenges, leading to reduced motivation, enthusiasm, and performance
  - *What factors contribute to burnout?*
- **Health Psychology (Part 2)**
- **Appraisal and Coping**
  - **Coping**
    - Cognitive, behavioral, and emotional abilities used to effectively manage something that is perceived as difficult or challenging
  - **Primary appraisal**
    - One’s initial assessment of a situation to determine its personal impact and whether it is irrelevant, positive, challenging, or harmful

- **Secondary appraisal**
  - An assessment to determine how to respond to a challenging or threatening situation
- Health Psychology (Part 4)
- Personality appears to have a profound effect on coping style and predispositions to stress-related illness.
  - **Type A personality:** competitive, aggressive, impatient, and often hostile patterns of behavior
  - **Type B personality:** relaxed, patient, and nonaggressive patterns of behavior
  - **Type D personality:** characterized by emotions like worry, tension, bad moods, and social inhibition, as well as a tendency to avoid dealing with problems directly and not taking advantage of social support
- Health Psychology (Part 5)
- The Three Cs of Hardiness
  - **Hardiness:** a personality characteristic indicating an ability to remain resilient and optimistic despite intensely stressful situations
    - Commitment
    - Control
    - Challenge
  - Kaynen flunked his first exam in nursing school but exhibited resilience by earning the highest grade on his next exam.
- Health Psychology (Part 6)

A sense of personal control is related to a variety of health issues across the life span.

- The less control felt, the greater the risk for disease.
  - **Demonstrated in cancer patients and individuals with cardiovascular disease**
- Choices increase a perceived sense of control.
- A sense of powerlessness is associated with increases in catecholamines and corticosteroids involved with stress response.

- Health Psychology (Part 7)
- **Internal Locus of Control**
- Someone who generally feels they are in control of life and its circumstances and believes it is important to take charge and make changes when problems occur
- **External Locus of Control**
- Someone who generally feels as if chance, luck, or fate is responsible for their circumstances
- Substances and Stress (Part 1)
- Self-medication hypothesis
  - Turning to drugs and alcohol to reduce anxiety
  - In the United States, women have increased consumption of alcohol during the COVID-19 pandemic.
  - Use of substances provides a temporary escape but can create bigger problems in the long run.
- Substances and Stress (Part 2)
- **Alcohol**
- Self-medication with alcohol is particularly problematic for teens, who may use drinking to cope with daily hassles.
- People who start drinking early in life and have a “greater number of stressful life events

[demonstrate] the highest consumption of alcohol in early adulthood.”

- Smoking
  - People smoke more when stressed.
  - Yet, smoking itself can be a stressor.
  - Smokers often report that using cigarettes improves their mood, and this is one of the reasons quitting can be so difficult.
  - Not all smokers need the same type of intervention.
- Tools For Healthy Living (Part I)
- Nutrition
  - Approximately two thirds of students gain weight during freshman year, and this may be associated with stress, poor nutrition, inadequate exercise, and alcohol consumption.
  - Stress is inevitable, but eating unhealthy food is unlikely to make it disappear.
- Exercise

- Exercise spurs the release of the body's natural painkilling and pleasure-inducing neurotransmitters, the endorphins.
- Only 30 minutes of daily exercise are needed to decrease the risk of heart disease, stroke, hypertension, diabetes, and certain types of cancer, not to mention improve feelings of well-being.
- Tools For Healthy Living (Part 2)
- Relaxation
  - Progressive muscle relaxation has been shown to defuse anxiety in highly stressed college students.
- Biofeedback
  - A technique for teaching a person to control seemingly involuntary physiological activities, such as heart rate, blood pressure, and skin temperature
- Tools For Healthy Living (Part 3)
- Social Support
  - Cultivating positive and enduring relationships with family, friends, and religious groups can generate a health benefit similar to exercise and smoking abstinence.
- Altruism
  - Helping others and expecting nothing in return
  - Reduces stress and boosts happiness
- Faith, Religion, and Prayer
  - Religious affiliation is associated with increased reports of happiness and physical health.
  - Researchers have found a link between ordinary "spiritual experiences" (like feelings of awe and gratitude) and measures of well-being.
- What's Going on in the "Blue Zones"? (Part I)

- Researchers estimate that about 25% of the population-wide variability in life span can be attributed to genes.
- Blue zones are areas with the highest number of people living over 100 years.
  - Ikaria, Greece
  - Okinawa, Japan
  - Ogliastra Region, Sardinia
  - Loma Linda, California
  - Nicoya Peninsula, Costa Rica
- What's Going on in the "Blue Zones"? (Part 2)
- Characteristics shared by inhabitants of these regions:
  - Plant-based diets
  - "Natural movement"
  - Finding meaning
  - Slowing down
  - Social support
- Right Here, Right Now
- **Mindfulness Meditation**
  - Being fully present in the moment; focusing attention on the here and now without passing judgment
  - Finding a way to enjoy the present is one of the best ways to reduce stress.
  - Brief mindfulness meditation can help college students manage their stress.