

- Learning—change in an organism's behavior or thought as a result of experience
 - Basic forms
 - **Habituation**—react less strongly over time
 - **Sensitization**—begin to react more strongly over time
- **Ivan Pavlov**—Russian physiologist and 1904 Nobel Prize winner
 - Most famous for work on digestion of the dog
 - This included the first work of **classical conditioning**
 - **Classical conditioning**
 - Form of learning in which a subject comes to respond to a previously neutral stimulus that has been paired with another stimulus that elicits an automatic response
 - **Neutral Stimulus**—nothing happens
 - **Unconditioned stimulus**—automatically causes the response
 - **Unconditioned response**—automatically response to neutral or unconditioned stimulus
 - **Conditioned stimulus**—begins to elicit a response with the unconditioned stimulus
 - **Conditioned response**—response that used to respond to a neutral stimulus, but now elicited with a conditioned stimulus
 - **Steps:**
 - Start with a neutral stimulus, which does not elicit a particular response
 - Metronome (NS)
 - Pair the NS *repeatedly* with the **unconditioned stimulus**, which elicits an **unconditioned response**
 - Meat powder (US) and salivation (UR)
 - Eventually, the NS becomes a **conditioned stimulus**, eliciting a **conditioned response**
 - Metronome and salivation
 - The organism reacts *the same way* to the previously NS as it did to the UCS
 - **Principles**
 - **Acquisition** is the phase during which a CR is established
 - **Extinction** is the reduction and elimination of the CR after the CS is presented repeatedly *without* the UCS
 - **Spontaneous recovery** is when an extinct CR reemerges after a delay in exposure to the CS
 - **Renewal effect**—the sudden reemergence of a CR following extinction when an animal is returned to the environment in which the CR was acquired
 - **Stimulus generalization**—when similar CS's elicit a CR
 - **Stimulus discrimination**—when we exhibit a CR only to certain stimuli, not similar others
 - Movie about tornado vs. tornado in real life
 - **Higher Order Conditioning**—process where organisms develop classically conditioned responses to CS's associated with the original CS
 - Becomes weaker the farther from the original CS

- Conditioning and Alcohol
 - CC can explain why we sometimes get more drunk in new settings
- Application of CC
 - Advertisers repeatedly pair their products with stimuli that elicit positive emotions
 - Can show **latent inhibition**
 - Helps to explain how and why we acquire some fears and phobias
 - Little Albert
 - **Fetishism**—seems to be partly due to classical conditioning
 - Japanese quails and terrycloth cylinders
- Operant Conditioning—learning controlled by the consequences of the organism's behavior
 - The organism gets something because of its response
 - Also known as *instrumental conditioning*
 - **Reinforcements** are outcomes that strengthen the probability of a response
 - **Positive reinforcement** involves giving a stimulus
 - **Negative reinforcement** involves taking away a stimulus (that you don't want)
 - **Punishment** is any outcome that weakens the probability of a response
 - **Positive** (physical shock, unpleasant outcomes) vs. **Negative** (removing a stimulus that you want to experience)
 - Disciplinary actions are punishments *only* if they decrease the chance of the behavior happening again
 - Does Punishment Work? Not as well as reinforcement, say many
 - Disadvantages
 - Tells what *not* to do
 - Creates anxiety
 - Encourages subversive behavior
 - May provide model for aggressive behavior
- The Law of Effect
 - If we're rewarded for a response to a stimulus, we're more like to repeat that response to the stimulus in the future
 - Learning involves an association between a stimulus and response (S-R), with the reward stamping in this connection
 - **E.L. Thorndike**
 - Discovered principles of the law of effect after experimenting with cats in puzzle boxes
 - Found no **insight** in cats
 - **B.F. Skinner**
 - Followed up on Watson and Thorndike's work on behavior
 - Designed the **Skinner box** to more effectively record activity
- Operant Conditioning Terminology
 - A **discriminative stimulus** signals the presence of reinforcement
 - Acquisition, extinction, spontaneous recovery, stimulus generalization, and stimulus discrimination all apply in OC
- Schedules of Reinforcement—refers to the pattern of delivering reinforcers
 - Simplest is **continuous reinforcement**—leads to the quickest reinforcement
 - **Partial reinforcement** occurs when we reinforce responses only some of the time
 - More resistant to extinction

- Vary along two dimensions
- Consistency of administering reinforcement
 - Fixed or variable
- The basis of administering reinforcement
 - Ratio or interval
- **Fixed ratio**—after regular number of responses
- **Variable ratio**—after specific number of responses, on average
- **Fixed interval**—after specific amount of time
- **Variable interval**—after an average time interval
- Each schedule yields distinctive response patterns
- Applications of OC
 - Animal training using **shaping by successive approximations** and *chaining*
 - **Shaping**—condition a target behavior by progressively reinforcing behaviors that come closer and closer to our goal
 - **Chaining**—linking related behaviors to form a longer series
 - Premack Principle and procrastination
 - Using token economies in clinical settings to shape desired behaviors
 - **Primary and secondary reinforcers**
 - *Applied behavior analysis* for language deficits in autism
- Skinner and Radical Behaviorism
 - Early behaviorists did not believe that *thinking* played much of a role in learning
 - Thought that thinking and emotions *are* behaviors, just covert ones
 - Today, psychologists acknowledge at least some role for cognitions
- **Latent learning**—refers to learning that is not directly observable
 - Implies that reinforcement is *not* necessary for learning to occur
 - Tolman & Honzik's maze trials
- **Observational Learning**—simply means learning by watching others
 - Don't have to engage in trial and error to learn how to do something new
- Reel and Real World Violence
 - Many types of research has examined the impact of violent media on behavior
 - Results suggest that media violence impacts real-world aggression in some cases
 - But, media violence is only one small contributor to real-world aggression
- Mirror Neurons—become activated when an animal observes or performs an action
 - May play a role in observational learning and having empathy for others
- **Insight learning**—suggests humans and some other animals may gain insight
 - Kohler's chimpanzees and "Aha!" moments
- **Biological Influence on Learning**
 - Conditional taste aversions
 - Develop after only one trial
 - Can have very long delays (6-8 hours)
 - Show little generalization
 - Animal research
- **Conditional Taste Aversions and Chemotherapy**—nausea induced by chemotherapy often leads to taste aversions
- **Biological Influences on Learning**
 - Common phobias include: the dark, heights, snakes, spiders, deep water, blood