

Review of Key Concepts and Terms (Unit 3B)

Learning

****Important but NOT TESTABLE**** vs. **New this year (24-25), TESTABLE; add to your notes**

Some psychologists focus their study on how humans and other animals learn and how some experiences can lead to changes in behavior and mental processes. Because the process of learning requires both physiological and psychological processes to work together, the two preceding units provide the foundation for this unit. Many psychologists who study learning focus on observable behaviors and how those behaviors can be changed or reinforced. Other learning psychologists study how the individual's observations of other peoples' behaviors influence changes in that individual's mental processes and resulting behaviors.

Topic 4.1: Introduction to Learning

Learning Target 4.A

Identify the contributions of key researchers in the psychology of learning.

ALBERT BANDURA

- Best known for his Social Learning Theory
 - Learning happens by observing others and modeling their behaviors
 - Occurs from a combination of environmental and psychological factors
 - Famous aggression experiment using a Bobo doll

IVAN PAVLOV

- Best known for his work describing Classical Conditioning
 - Through his study of digestion in dogs, he observed that the dogs all salivate at the mere sight of food
 - Famous experiment in which he conditioned dogs to salivate in response to the sound of a bell by building an association between the bell and food
 - Laid the foundation for Behaviorism

ROBERT RESCORLA

- Expanded on Pavlov's work; focused on Contingency Theory
 - Interested in the frequency or the number of times an association was made
 - Positive contingency = association between the bell and food is close, or strong
 - (bell)(food)----- (bell)(food)----- (bell)(food)----- (bell)...
 - Negative contingency = dog is less likely to anticipate food at the sound of the bell
 - (bell)(food)---- (bell)(bell)---- (food)----- (food)---- (bell)...

B.F. SKINNER

- Best known for developing the theory of Operant Conditioning
 - Uses reinforcers or consequences to change behavior.
 - According to this theory, the rate at which a certain behavior occurs is determined not by what precedes it, but by the consequence that follows it.

- Famous experiments involving the Skinner Box which was used to study rats and pigeons

EDWARD THORNDIKE

- Best known for his work on Learning Theory
 - Studied how cats learned to escape from a puzzle box
 - Concluded its escape was a process of learning / trial and error, rather than mere insight
 - Developed the Law of Effect
 - When a behavior is followed by a desirable consequence, it becomes associated with that situation so that the behavior becomes more likely to be performed when the same situation is encountered and vice versa
 - His work later leads to the development of Operant Conditioning

EDWARD TOLMAN

- Best known for his theory on Latent Learning
 - States that learning occurs even if there is no reward
 - Demonstrated this in an experiment where rats were trained to run a maze without a reward. After a few days, a reward was introduced and the rats began to run the maze faster
 - Concluded that the rats had developed a “mental map” of the maze when they were not being rewarded

JOHN B. WATSON

- Father of Behaviorism
 - Emphasizes objective and observable data such as people’s behavior and reactions, as opposed to internal processes that cannot be observed like mental states or thought processes
- Most famous for the controversial Little Albert Experiment
 - Trained 9-month old Albert to fear a white rat by pairing it with a loud sound
 - The fear was then generalized to other furry white objects

JOHN GARCIA

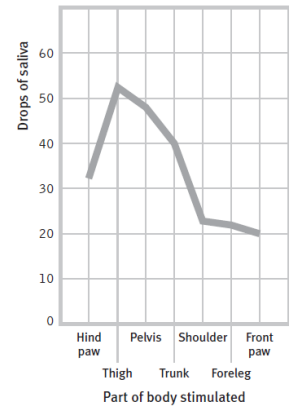
- Best known for his work with Conditioned Taste Aversion
 - An aversion or distaste for a particular taste or smell that was associated with a negative reaction (such as nausea or vomiting)
 - Discovered while studying the effects of radiation on mice
 - The “Garcia Effect” occurs in patients undergoing treatment for cancer who are exposed to radiation as treatment or when humans have a bad reaction occur as a result of ingesting a particular food or drink

Learning Target 4.B

Interpret graphs that exhibit the results of learning experiments.

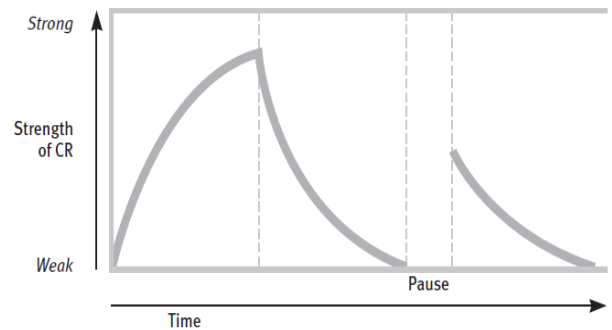
Explain how the graph to the right, based on Pavlov's experiments with salivating dogs, demonstrates generalization and discrimination.

Pavlov conditioned salivation to stimulation of the thigh. The graph shows the greatest number of drops of saliva correlated to the stimulation of the thigh. When Pavlov began to stimulate other areas of the dog's body, he found that the closer to the thigh the stimulation occurred, the more saliva was emitted. The dog generalized its salivary response to electric stimulation of nearby parts—the pelvis, the trunk. The dog discriminated its response when the stimulation occurred very far from the thigh —the front paw stimulation yielded significantly fewer drops of saliva.



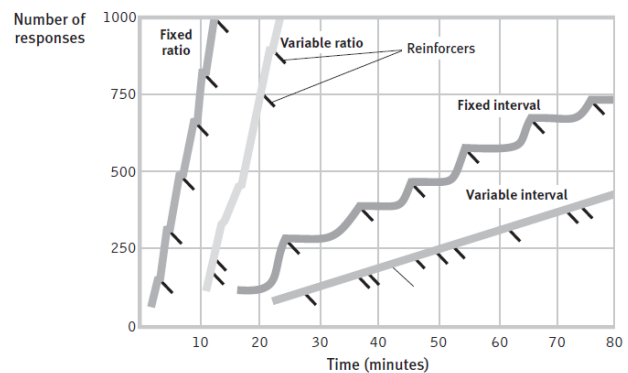
Explain how the graph to the right demonstrates extinction and spontaneous recovery.

The strength of the conditioned response in Pavlovian conditioning increases during the training phase as the US is presented with the NS. Once the CR reaches a peak, the CS is then presented without the US. The response wears off until it is extinguished. There is a time break and then when the CS is reintroduced, there is spontaneous recovery of the CR, although at a lower strength than the previous peak and then with repeated introduction of the CS without the US, the CR extinguishes once again.



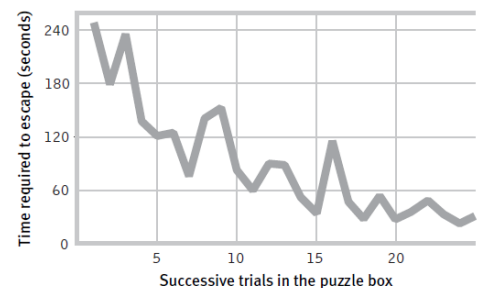
Explain how the graph to the right demonstrates the impact of various reinforcement schedules of learning.

1. Ratio schedules (number of responses) produce higher numbers of responses than interval schedules.
2. Fewer reinforcers are needed with variable ratio schedules than with fixed ratio schedules to achieve the same # of responses.
3. Responses increase near times of reinforcement in fixed interval schedules
4. Variable schedules produce more consistent responses than fixed schedules.



Explain how the graph to the right demonstrates Thorndike's law of effect.

Performance improves with more success. Behaviors that worked become more likely.

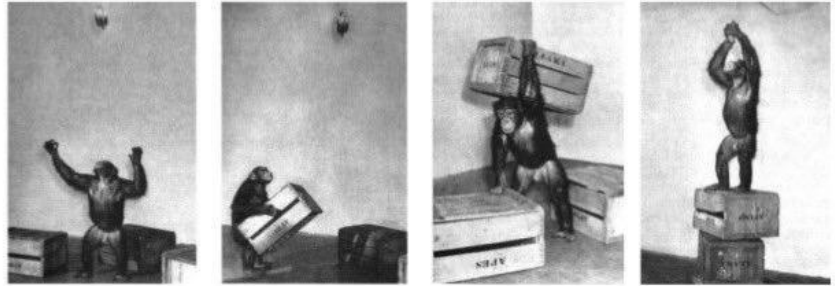


Learning Target 4.C

Describe the essential characteristics of insight learning, latent learning, and social learning.

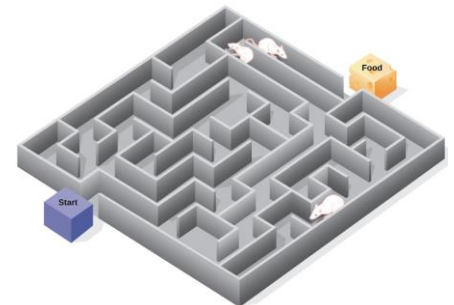
Insight Learning (Wolfgang Köhler)

- This is an extension of the term, insight which was identified by Wolfgang Köhler while studying the behavior of chimpanzees. He said that insight learning is a type of learning or problem solving that happens all-of-a-sudden through understanding the relationships between various parts of a problem rather than through trial and error.
- Sultan, one of Köhler's chimpanzees, learned to use a stick to pull bananas from outside of his cage by putting pieces of stick together. Given two sticks that could be fitted together to make a single pole that was long enough to reach the bananas, aligned the sticks and in a flash of sudden inspiration, fitted the two sticks together and pulled in the bananas. He didn't do this by trial and error, but had a sort of sudden inspiration or insight.



Latent learning (Edward Tolman)

- Learning becomes obvious only once reinforcement is given for demonstrating it; Tolman used rats in a maze that were reinforced halfway through - performance improved
 - Believed the rats developed *cognitive maps* or mental representations of an area that allow navigation if blocked.



Observational / Social Learning Theory (Albert Bandura)

- The process of acquiring information by observing others. Learning to tie your shoe by observing another individual perform the task would be an example of observational learning.
- The Bandura Bobo doll study: illustrated that children learn by watching others who display aggression (modeling)
 - **Prosocial** – helping behaviors
 - **Antisocial** – mean behaviors

Bandura's Observational Learning



Learning Target 4.D

Apply learning principles to explain emotional learning, taste aversion, superstitious behavior, and learned helplessness.

Emotional Learning (*also known as Conditioned Emotional Response*)

- Remember that John B. Watson (and his graduate student Rosalie Raynor) conditioned fear in Little Albert. His experiment presents an example of how classical conditioning can be used to condition an emotional response.
- In addition to demonstrating that emotional responses could be conditioned in humans, Watson also observed that **stimulus generalization** had occurred. After conditioning, Albert feared not just the white rat, but a wide variety of similar white objects as well. His fear included other furry objects including Raynor's fur coat and Watson wearing a Santa Claus beard.



Taste Aversion

- With taste aversion, the mind develops a resistance towards a certain food. In simpler terms, eating certain types of food can cause a bad reaction. This is a form of classical conditioning when the body uses a natural instinct as a means of protection. This is also called a survival mechanism. It warns the body if a type of food (berries or mushrooms) is harmful.
- A person can acquire a taste aversion to a type of food, due to circumstances, as well. For example, an individual may eat lasagna at an early age and become sick. The sickness may be caused by any reason-(bad tomato in the sauce or the meat not thoroughly cooked). Regardless of the reason, that individual may have a negative reaction to eating lasagna any given time after the experience.
- Research done by John Garcia showed rats become averse to their food when associated with radiation treatments.

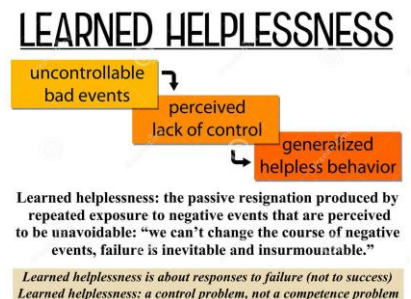
Superstitious Behavior

- Superstitious behavior is the product of a reinforcer or punisher (operant conditioning) occurring shortly after an unrelated behavior.
- EXAMPLE: You are walking down the street and a black cat runs in front of your path. Seconds later, you trip and fall flat on your face. The fall (a reinforcer) is connected to the cat (unrelated behavior) to condition you to believe there is a connection (black cats are bad luck).
- Skinner's Pigeon Experiment revealed that even pigeons can be **conditioned** to develop superstitious behaviors in belief that they will be fed.



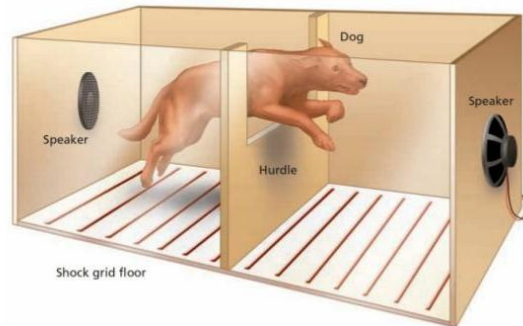
Learned Helplessness (Seligman)

- When an organism (person, animal, etc.) is prevented from avoiding some aversive stimulus repeatedly (e.g., continuous electric shocks) the organism will reach a state in which it becomes passive and depressed because he believes that there are no actions it can take to avoid the aversive stimulus. Essentially, the organism just gives up trying to avoid it and just takes the aversive stimulus. Thus, the organism learns that it is helpless against the aversive stimulus.



- No matter what you do you never get a positive outcome so you just give up (word scrambles)

Figure 5.11 Seligman's Apparatus
In Seligman's studies of learned helplessness, dogs were placed in a two-sided box. Dogs that had no prior experience with being unable to escape a shock would quickly jump over the hurdle in the center of the box to land on the "safe" side. Dogs that had previously learned that escape was impossible would stay on the side of the box in which the shock occurred, not even trying to go over the hurdle.



Learning Target 4.E

Provide examples of how biological constraints create learning predispositions.

Biological Preparedness and Constraints

Pavlov and Watson believed that laws of learning were similar for all animals. Therefore, a pigeon and a person do not differ in their learning.

- However, behaviorists later suggested that learning is constrained by an animal's biology. Certain organisms make learned associations with some type of stimuli easier than other stimuli.
- **John Garcia** studied rats and found that due to their excellent sense of smell and weaker vision, they were more likely to respond to odors during classical conditioning.
- While ***biological preparedness*** influences the type of associations best learned by a particular animal, ***biological constraints*** are limitations imposed by biology on a species in terms of what they are capable of learning.
 - Biological preparedness suggests that humans are more likely to develop **phobias** of objects and situations that would have posed danger in the past to our ancestors, such as confined places, heights, darkness, snakes, and spiders.
 - Humans are the only organisms capable of **language** (biological preparedness), but humans are not capable of breathing under water and cannot learn that skill (biological constraint)

Topic 4.2: Classical Conditioning

Learning Target 4.F

Describe basic classical conditioning phenomena.

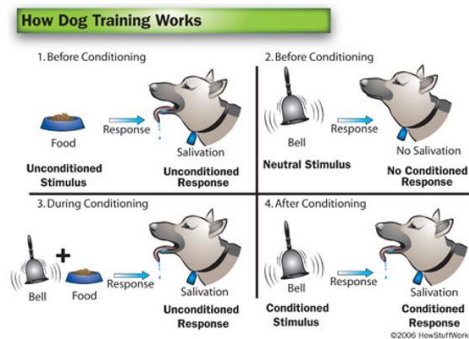
Pavlov's classic experiment with dogs. (Classical Conditioning)

- Pavlov noticed that dogs salivated (UCR) to various stimuli associated with meat (UCS). He then paired the

ringing bell with the giving of the meat. After several repetitions, Pavlov found that the dogs salivated (CR) to the sound of the bell.

- **Unconditioned Stimulus (UCS):** brings about response w/o needing to be learned (food)
- **Unconditioned Response (UCR):** response that naturally occurs w/o training (salivate)
- **Neutral Stimulus (NS):** stimulus that normally doesn't evoke a response (bell)
- **Conditioned Stimulus (CS):** once neutral stimulus that now brings about a response (bell)
- **Conditioned Response (CR):** response that, after conditioning, follows a CS (salivate)

Pavlov's Classical Conditioning

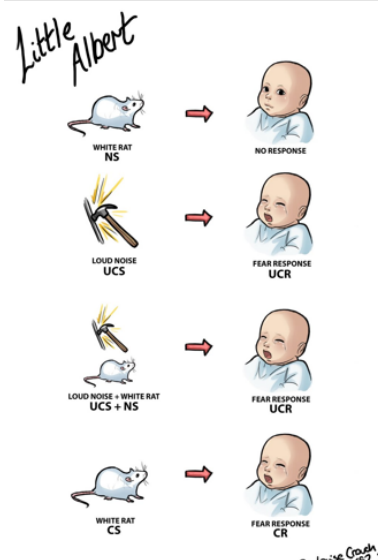


- **Contiguity:** Timing of the immediately BEFORE the UCS pairing, NS/CS must be presented
- **Acquisition:** process of learning the response pairing
- **Extinction:** previously conditioned response dies out over time; the CS is disconnected from the US and no longer causes the CR to occur
- **Spontaneous Recovery:** After a period of time the CR comes back out of nowhere (from extinction)
- **Generalization:** CR to like stimuli (similar sounding bell)
- **Stimulus Discrimination:** the ability to distinguish between a CS and stimuli that do not signal an US; CR to ONLY the CS
- **Higher-Order Learning:** the CS in one conditioning experience is paired with a new NS, creating a second (often weaker) CS. For example, an animal that has learned that a tone predicts food might learn that a light predicts the tone and begins responding to the light alone.

Watson's experiment with Little Albert

(Father of Behaviorism)

- Watson took Pavlov's research a step further by showing that emotional reactions could be classically conditioned in people.
 - **Neutral Stimulus:** A stimulus that does not initially elicit a response (the white rat).
 - **Unconditioned Stimulus:** A stimulus that elicits a reflexive response (the loud noise).
 - **Unconditioned Response:** A natural reaction to a given stimulus (fear).
 - **Conditioned Stimulus:** A stimulus that elicits a response after repeatedly being paired with an unconditioned stimulus (the white rat).
 - **Conditioned Response:** The response caused by the conditioned stimulus (fear).



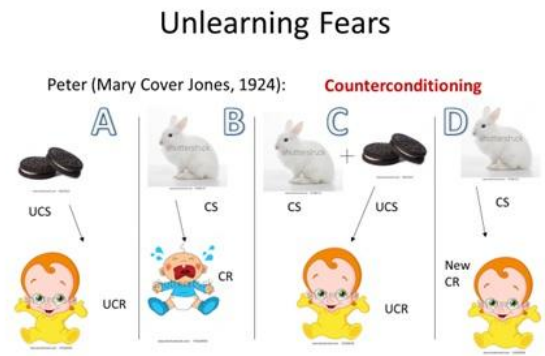
Watson's Little Albert Experiment (Classical Conditioning)

CONTINGENCY MODEL: Rescorla & Wagner – classical conditioning involves cognitive processes

CONDITIONED TASTE AVERSION (ONE-TRIAL LEARNING): John Garcia – Innate predispositions can allow classical conditioning to occur in one trial (food poisoning)

COUNTERCONDITIONING (EXPOSURE THERAPY / DESENSITIZATION): Mary Cover Jones

- If Watson used conditioning to teach fear, Jones thought of using classical/direct conditioning to unlearn fear. For instance, she helped Little Peter overcome his fear of rabbits by systematically pairing the animal with his favorite food which is candy.



Learning Target 4.6

Distinguish general differences between principles of classical conditioning, operant conditioning, and observational learning.

Classical Conditioning	A type of learning in which one learns to link two or more stimuli and anticipate events; learning is involuntary and automatic
Operant Conditioning	A type of learning in which behavior is strengthened if followed by a reinforcer or diminished if followed by a punisher; learn through your own actions
Observational Learning	Learn by observing others

In summary, the processes of generalization, discrimination, extinction, and spontaneous recovery occur in **both** classical and operant conditioning. Both types of conditioning depend on **associative learning**. In classical conditioning, an association is formed between two stimuli – for example, a tone and food, a white rat and a loud noise, a product and a celebrity. In operant conditioning, the association is established between a response and its consequences – studying hard and a high test grade, or, in the world of rats, bar pressing and food.

In classical conditioning, the focus is on what **precedes** the response. Pavlov focused on what led up to the salivation in his dogs, not on what happened after they salivated. In operant conditioning, the focus is on what **follows** the response. If a rat's bar pressing or your studying is followed by a reinforcer, that response is more likely to occur in the future.

Generally, in classical conditioning, the subject is **passive and responds** to the environment rather than acting on it. In operant conditioning, the subject is **active and operates** on the environment. Children *do* something to get their parents' attention or their praise.

Classical and Operant Conditioning Compared

Characteristics	Classical Conditioning	Operant Conditioning
Types of association	Between two stimuli	Between a response and its consequences
State of subject	Passive	Active
Focus of attention	On what precedes the response	On what follows the response
Types of response typically involved	Involuntary or reflexive response	Voluntary response
Bodily response typically involved	Internal responses; emotional and glandular reactions	External responses; muscular and skeletal movement and verbal responses
Range of responses	Relatively simple	Simple to highly complex
Responses learned	Emotional reactions: fear, likes, dislikes	Goal-oriented responses

Classical Conditioning	BASIC PROCESSES	Operant Conditioning
<p>Acquisition occurs when a CS and US are paired, gradually resulting in a CR.</p> <p>Acquisition depends on stimulus contiguity (sequential occurrence), which is a temporal (timed) association between events.</p>	<p>ACQUISITION is the formation of a conditioned response tendency.</p>	<p>Acquisition occurs when a response gradually increases due to contingent reinforcement.</p> <p>Acquisition may involve shaping - the reinforcement of closer and closer approximations of the desired response.</p>
<p>Extinction occurs when a CS is repeatedly presented alone until it no longer elicits a CR.</p> <p>Spontaneous recovery is the reappearance of an extinguished response after a period of non-exposure to the CS.</p>	<p>EXTINCTION is the gradual weakening of a conditioned response tendency</p>	<p>Extinction occurs when responding gradually slows and stops after reinforcement is terminated.</p> <p>Resistance to extinction occurs when an organism continues to make a response after reinforcement for it has been terminated.</p>
<p>Generalization occurs when a CR is elicited by a new stimulus that resembles the original CS, as in Watson and Rayner's study of Little Albert.</p>	<p>GENERALIZATION occurs when an organism responds to new stimuli besides the original stimulus</p>	<p>Generalization occurs when responding increases in the presence of a stimulus that resembles the original discriminative stimulus.</p>
<p>Discrimination occurs when a CR is not elicited by a new stimulus that resembles the original CS.</p> <p>Higher-order conditioning occurs when a CS functions as if it were a UCS.</p>	<p>DISCRIMINATION occurs when an organism does not respond to other stimuli that resemble the original stimulus.</p>	<p>Discrimination occurs when responding does not increase in the presence of a stimulus that resembles the original discriminate stimulus.</p> <p>Primary reinforcers are inherently reinforcing, whereas secondary reinforcers develop through learning.</p>

Topic 4.3: Operant Conditioning

Learning Target 4.H

Predict the effects of operant conditioning.

Edward Thorndike

- Conducted experiments using a cat in a puzzle box. Watched how cat learned to get out of the cage in order to get food (reinforcer)
- The time required for the cat to get out of the box decreased over a series of trials
- **Law of Effect:** if the consequences of a behavior are pleasant, the stimulus-response connection will be strengthened and the likelihood of the behavior will increase. The reverse is also true.
- Coined his findings as **instrumental learning** because Thorndike believed that learning consequences is instrumental in shaping future behaviors.

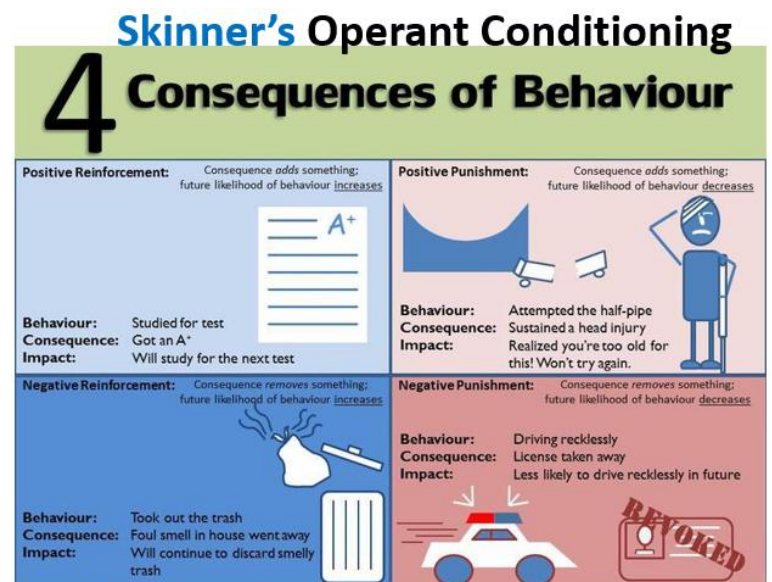
B.F. Skinner

- Coined the term operant conditioning
- Invented the Skinner box to use in his research
- Used food as a reinforcer

PRINCIPLES OF OPERANT CONDITIONING:

- **Positive Reinforcement:** Add something *nice* to increase a behavior (gold star for turning in HW)
- **Negative Reinforcement:** Take away something *bad/annoying* to increase a behavior (put on seatbelt to take away annoying car signal)
- **Positive Punishment:** Add something *bad* to decrease a behavior (spanking)
- **Negative Punishment:** Take away something *good* to decrease a behavior (take away car keys)

- **Primary Reinforcers:** innately satisfying (food and water)
- **Secondary Reinforcers:** everything else (stickers, high-fives)
 - **Token Reinforcer:** type of secondary- can be exchanged for other stuff (game tokens or money)
- **Generalization:** respond to similar stimulus for reward
- **Discrimination:** stimulus signals when behavior will or will not be reinforced (light on means response are accepted)
- **Extinction / Spontaneous Recovery:** same as classical conditioning
- **Premack Principle:** high probability activities reinforce low probability activities (get extra min at recess if you everyone turns in their HW)
- **Overjustification Effect:** reinforcing behaviors that are intrinsically motivating causes you to stop doing them (give a child 5\$ for reading when they already like to read – they stop reading)
- **Shaping:** use *successive approximations* to train behavior (reward desired behaviors to teach a response – rat basketball)
- **Chaining:** tie together several behaviors



SCHEDULES OF REINFORCEMENT

- **Continuous Reinforcement schedule:** Receive reward for every response
- **Fixed Ratio schedule:** Reward every X number of response (every 10 envelopes stuffed get \$\$)
- **Fixed Interval schedule:** Reward every X amount of time passed (every 2 weeks get a paycheck)
- **Variable Ratio schedule:** Rewarded after a random number of responses (slot machine)
- **Variable Interval schedule:** Rewarded after a random amount of time has passed (fishing)
- **Variable schedules are most resistant to extinction** (how long will you keep playing a slot machine before you think its broken?)

Learning Target 4.I

Predict how practice schedules of reinforcement, other aspects of reinforcement, and motivation will influence quality of learning.

The Effects of Reinforcement and Punishment

Reinforcement <i>(increase or strengthens a behavior)</i>	Punishment <i>(decrease or suppresses a behavior)</i>
Adding a Positive (positive reinforcement) Presenting food, money, praise, attention, or other rewards.	Adding a Negative (positive punishment) Delivering a pain-producing or otherwise aversive stimulus, such as a spanking or electric shock.
Subtracting a Negative (negative reinforcement) Removing or terminating some pain-producing or otherwise aversive stimulus, such as an electric shock or taking medicine for a headache. Plays a key role in escape and avoidance learning.	Subtracting a Positive (negative punishment) Removing some pleasant stimulus or taking away privileges such as TV watching or use of automobile.

Reinforcement Schedules Compared

<i>Schedule of Reinforcement</i>	<i>Response Rate</i>	<i>Pattern of Responses</i>	<i>Resistance to Extinction</i>
Fixed-ratio schedule	Very high	Steady response with low ratio. Brief pause after each reinforcement with very high ratio.	The higher the ratio, the more resistance to extinction.
Variable-ratio schedule	Highest response rate	Constant response pattern, no pauses	Most resistance to extinction.
Fixed-interval schedule	Lowest response rate	Long pause after reinforcement, followed by gradual acceleration.	The longer the interval, the more resistance to extinction.

Variable-interval schedule	Moderate	Stable, uniform response.	More resistance to extinction than fixed-interval schedule with same average interval.
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Topic 4.4: Social and Cognitive Factors in Learning

Learning Target 4.J

Suggest how behavior modification, biofeedback, coping strategies, and self-control can be used to address behavioral problems.

Behavior Modification

- A type of behavioral therapy in which the principles of Operant Conditioning (reinforcement, punishments, etc.) are used to eliminate some types of unwanted, maladaptive, behavior.
 - For example, a person may feel that they no longer want to smoke (the maladaptive behavior) and so the person is given a favorite piece of candy every time a cigarette is desired but refused. So, when the person wants a cigarette but does not have one, they get a piece of their favorite candy as a reward.
 - Also known as Counterconditioning. Research by Mary Cover Jones with Little Peter to see if she could do the opposite of Watson's work with Little Albert

Biofeedback

- A method of behavior modification that uses principles of operant conditioning to change a maladaptive behavior. With this method, a person is presented with visual or auditory information about some internal, involuntary process. The information is actual feedback about the internal process that the person can use to increase control of the internal process.
 - For example, a person suffering from stress can be hooked up to a biofeedback machine that creates a sound whenever the person starts getting stressed (increased heart rate, blood pressure, etc., would cause the machine to produce the sound). By paying attention to the sounds, the person can use relaxation techniques when there are some internal changes due to the stress - even if they are not yet feeling them, the effects can be identified by the machine and then controlled by the person. Over time, the goal is to be able to control these behaviors without the use of the machine.

Self-Control

- The ability to delay the satisfaction of immediate desires for a long-term benefit - is effective in addressing behavior problems and correlates significantly with happiness.
- In studies, this ability has predicted good adjustment, better grades, and social success.
- A perceived lack of control provokes an outpouring of hormones that put people's health at risk.

Locus of Control

- Locus of control is the perception of where control over life events resides
 - An internal locus of control is the belief that people have the ability to control their lives, choices, and the world. They direct their life (life does not just happen) and they can influence people and situations. However, people with an internal locus of control are also more likely to blame themselves for circumstances beyond their control.
 - People with a high external locus of control believe that they have little or no control over their lives or over what other people do. These people tend to be fatalistic, passive, and accepting.

Comparing Classical and Operant Conditioning: What's the Difference?



New Directions in the Study of Conditioning

Recognizing biological constraints on learning

- John Garcia found that it is almost impossible to create some associations, whereas conditioned taste aversions are readily acquired in spite of long CS-US delays, which he attributed to evolutionary influences.
- Preparedness, or an evolved module for fear learning, appears to explain why people acquire phobias of ancient sources of threat much more readily than modern sources of threat.
- Michael Domjan argues that in studies of classical conditioning, researchers should shift their focus from arbitrary, neutral stimuli to ecologically relevant conditioned stimuli, which may yield somewhat different patterns of learning, such as more rapid acquisition and greater resistance to extinction.
- Differences in the adaptive challenges faced by various species have probably led to some species-specific learning tendencies.

Recognizing cognitive processes in conditioning

- Edward Tolman's research on latent learning and cognitive maps suggested many years ago that cognitive processes play a role in conditioning, but his views were ahead of their time.
- Robert Rescorla showed that the predictive value of a CS influences the process of classical conditioning.
- When a response is followed by a desirable outcome, the response is more likely to be strengthened if it appears to have caused the favorable outcome.
- Modern theories hold that conditioning is a matter of detecting the contingencies that govern events.



Observational Learning

- *Observational learning* occurs when an organism's responding is influenced by the observation of others, called *models*.
- Observational learning was pioneered by Albert Bandura, who showed that conditioning does not have to be a product of direct experience.
- Both classical and operant conditioning can take place through observational learning.
- Observational learning depends on the processes of attention, retention, reproduction, and motivation.
- Bandura distinguishes between the *acquisition* of a learned response and the *performance* of that response, with the latter depending on reinforcement.
- Observational learning can explain why physical punishment tends to increase aggression in children even when it is intended to do the opposite.
- Observational learning can also explain why exposure to media violence correlates with increased aggression.



Key Themes

- ➊ Heredity and environment interactively govern behavior.
- ➋ Psychology evolves in a sociohistorical context.