Learning

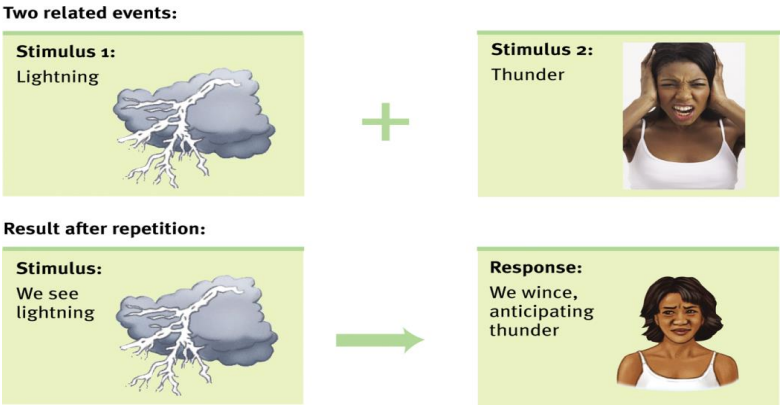
Learning: a relatively permanent change in an organism's behavior due to experience.

Instinct: unlearned behaviors due to evolution. Ex. bears hibernating.

Habituation: an organism's decreasing response to a stimulus with repeated exposure to it.

Associative learning: learning that certain events occur together; these events may be two stimuli (as in classical conditioning) or a response and its consequences (as in operant conditioning).
***Remember: BOTH classical and operant conditioning are types of associative learning.**

Classical conditioning: a type of learning in which one learns to link two or more stimuli and anticipate events.



Respondent Behavior: behavior that occurs as an automatic response to some stimulus. Only occurs in classical conditioning.

Unconditioned response (UR or UCR): in classical conditioning, the unlearned, naturally occurring response to the unconditioned stimulus (US/UCS), such as salivation when food is in the mouth.

Unconditioned stimulus (US or UCS): in classical conditioning, a stimulus that naturally and automatically triggers a response.

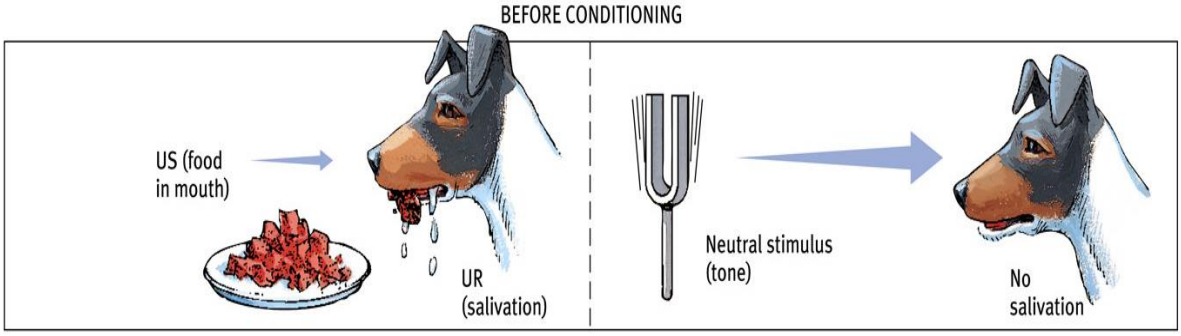
Neutral stimulus (NS): in classical conditioning, a stimulus that has no effect on the subject.

Conditioned response (CR): in classical conditioning, the learned response to a previously neutral, but now conditioned, stimulus, the CS. ***Remember: the NS always becomes the CS.**

Conditioned stimulus (CS): in classical conditioning, an originally irrelevant stimulus (NS) that, after association with an UCS/US, comes to trigger a CR. ***Remember: the UCR always becomes the CR. The only difference is what you are responding to.**

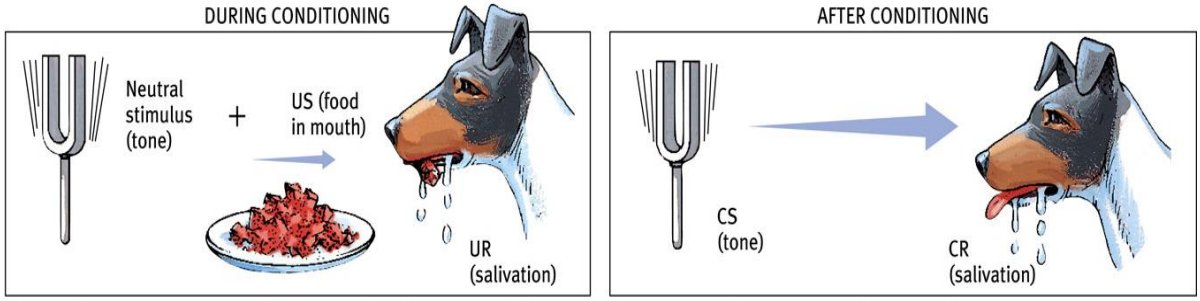
***Remember: a stimulus is a thing, a response is an action.**

***Remember: conditioned = learned/changed (you condition your hair so it learns to be smoother, you are changing it). Unconditioned = unlearned/unchanged**



An unconditioned stimulus (US) produces an unconditioned response (UR).

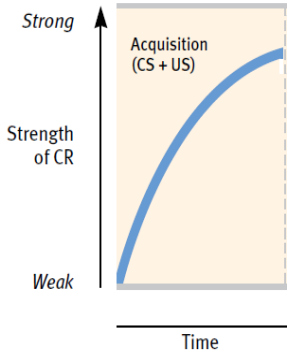
A neutral stimulus produces no salivation response.



The unconditioned stimulus is repeatedly presented just after the neutral stimulus. The unconditioned stimulus continues to produce an unconditioned response.

The neutral stimulus alone now produces a conditioned response (CR), thereby becoming a conditioned stimulus (CS).

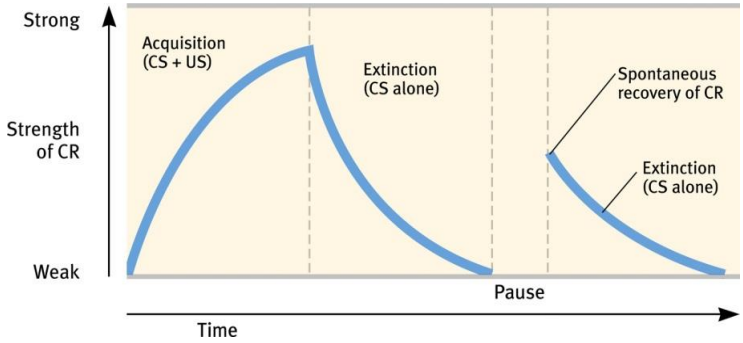
Acquisition: the process of learning a conditioned response.



Higher-order conditioning: a procedure in which the CS in one conditioning experience is paired with a new neutral stimulus, creating a second (an often weaker) CS. For example, an animal that has learned that a tone predicts food might then learn that a light predicts the tone and begins responding to the light alone. This is also known as **second-order conditioning**.

Extinction: the process of unlearning or removing a conditioned association. In classical conditioning, this occurs when the link between the CS and USC no longer exists. In operant conditioning, this occurs when a response is no longer reinforced.

Spontaneous recovery: the reappearance, after a break, of an extinguised conditioned response.



Generalization: the tendency, once a response has been conditioned, for stimuli similar to the CS to elicit similar responses. For example, being afraid of any dog, no matter the size or kind, after you were bitten by one.

Discrimination: in classical conditioning, the learned ability to distinguish between a CS and stimuli that do not signal a UCS. In operant conditioning, the ability to respond differently to stimuli that signal a certain behavior as to whether or not it will be reinforced. For example, being afraid of only big dogs after you were bitten by a Rottweiler.

Taste aversion: a classically conditioned dislike for and avoidance of a particular food that develops when an organism becomes ill after eating the food. (John Garcia)

Learned helplessness: the hopelessness and passive resignation a person, or animal, learns when unable to avoid repeated aversive (negative) events. (Martin Seligman)

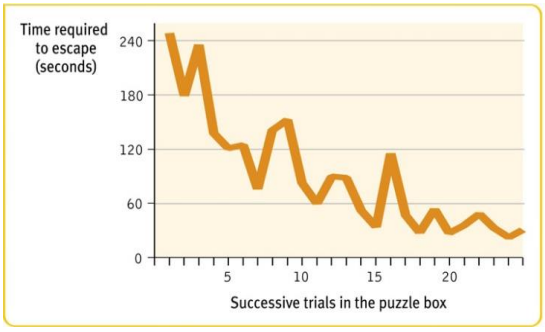
Behaviorism: the view that psychology (1) should be an objective science that (2) studies behavior without reference to mental processes. Most research psychologists today agree with (1) but not (2). John Watson (Baby Albert experiment is the father of Behaviorism).

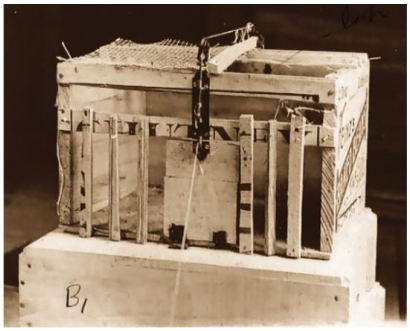
Operant conditioning: a type of learning in which behavior is strengthened if followed by a reinforcer or diminished if followed by a punisher.

(a) Response: balancing a ball (b) Consequence: receiving food (c) Behavior strengthened

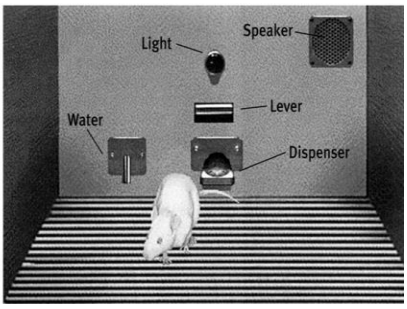
Operant behavior: behavior that operates on the environment, producing consequences. Only occurs in operant behavior.

Law of effect: E.L. Thorndike's principle that states behaviors followed by favorable consequences will be repeated, and behaviors followed by unfavorable consequences will be diminished. Thorndike used a fish reward to entice cats to find their way out of a puzzle box through a series of maneuvers. The cats' performance illustrated Thorndike's *law of effect*.





Operant chamber (aka Skinner Box): a chamber containing a bar or key that an animal can manipulate to obtain a food or water reinforcer that can record the animal's rate of bar pressing or key pecking.



Shaping: an operant conditioning procedure in which reinforcers guide behavior toward closer and closer approximations of the desired behavior.

Chaining: reinforcing individual responses in a sequence to form a complete behavior. Ex. learning a dance, you must learn the first step in order to do the 2nd.

Discriminative stimulus: a stimulus that elicits a response after association with reinforcement. Ex. if an experimenter reinforces a pigeon for pecking after seeing a human face, but not after seeing other images, the pigeon learns to recognize human faces.

Reinforcer: any consequence that **strengthens** a behavior.

Positive reinforcement: increasing behaviors by presenting positive stimuli, such as money, praise, a hug, etc.

Negative Reinforcement: increasing behaviors by reducing an aversive (bad) stimulus, such as putting up your umbrella so you don't get wet when it's raining. ***Remember: this is NOT punishment.**

WAYS TO INCREASE BEHAVIOR

Operant Conditioning Term	Description	Examples
Positive reinforcement	Add a desirable stimulus	Getting a hug; receiving a paycheck
Negative reinforcement	Remove an aversive stimulus	Fastening seatbelt to turn off beeping

***Remember: positive and negative reinforcement is not about good and bad, it's about giving and taking away.**

Premack Principle: Preferred behaviors can be used to reinforce unpreferred behaviors. Ex. in order to eat dessert, you must first eat your broccoli.

Vicarious Reinforcement: reinforcement which is received indirectly by another person who is being reinforced. Ex. seeing your brother praised for cleaning his room, so you clean your room.

Primary reinforcer: an innately reinforcing stimulus, such as one that satisfies a biological need, like eating when hungry.

Secondary (conditioned) reinforcer: a stimulus that gains its reinforcing power through its association with a primary reinforce, like choosing to go out to Moe's to eat when hungry instead of eating a carrot at home.

Token economy: collecting tickets or tokens for good behavior that can be traded in for prizes or privileges at a later date.

Immediate reinforcer: a reinforcer that occurs instantly after a behavior. Ex. a waitress getting tips.

Delayed reinforcer: a reinforcer that is not given immediately after a certain behavior. Ex. Getting a weekly paycheck

Continuous reinforcement: reinforcing the desired response every time it occurs. Ex. training an animal you give it a treat every time it does something right. Extinction can be quick, however.

Partial (intermittent) reinforcement: reinforcing a response only part of the time; results in slower acquisition of a response but much greater resistance to extinction than does continuous reinforcement. Ex. slot machines – you don't know when you are going to win so you keep playing. ***Remember: intermittent windshield wipers, you don't know when they are going to wipe off the rain.**

Fixed-ratio schedule (FR): a reinforcement schedule that reinforces a response only after a specified number of responses. Ex. if you have a Starbucks gold card, you get a free drink after every 12 purchased.

Variable-ratio schedule (VR): a reinforcement schedule that reinforces a response after an unpredictable number of responses. Ex. having a competition at the GAP to see who sells the most amount of jeans in a period of time. You don't know how many you have to sell, you know you just have to sell the most.

Fixed-interval schedule (FI): a reinforcement schedule that reinforces a response only after a specified time has elapsed. Ex. checking to see if your cookies are finished baking when the cooking time is between 10-12 minutes. You know there is a set time.

Variable-interval schedule (VI): a reinforcement schedule that reinforces a response at unpredictable time intervals. Ex. not knowing when a friend is going to text you so you keep checking your phone.

SCHEDULES OF REINFORCEMENT

	Fixed	Variable
Ratio	*Every so many:* reinforcement after every n^{th} behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced	*After an unpredictable number:* reinforcement after a random number of behaviors, as when playing slot machines or fly-casting
Interval	*Every so often:* reinforcement for behavior after a fixed time, such as Tuesday discount prices	*Unpredictably often:* reinforcement for behavior after a random amount of time, as in checking for e-mail

***Remember: ratio has to do with numbers like in math and interval has to do with time like in working out in intervals. If something is fixed, it's set, if something is variable, it's unknown, like in algebra, solve for the variable.**

Punishment: an event that decreases the behavior that it follows, the opposite of reinforcement.

Positive punishment: administering an aversive (bad) stimulus, such as a spanking.

Negative punishment: taking away a desirable stimulus, such as getting a time-out

Ways to Decrease Behavior

Type of Punisher	Description	Possible Examples
Positive punishment	Administer an aversive stimulus	Spanking; a parking ticket
Negative punishment	Withdraw a desirable stimulus	Time-out from privileges (such as time with friends); revoked driver's license

***Remember: positive and negative punishment is not about good and bad, it's about giving and taking away.**

Cognitive map: a mental representation of the layout of one's environment. Ex. being able to picture the layout of HHS.

Latent learning: learning that occurs but is not apparent until there is an incentive to demonstrate it. Ex. learning CPR in PE but not knowing you really know it until you have to administer it.

Insight: a sudden and often novel (new) realization of a solution to a problem. An "ah-ha" moment.

Overjustification effect: the effect of promising a reward for doing what one already likes to do and then losing interest in it.

Intrinsic motivation: a desire to perform a behavior effectively for its own sake. Ex. you get good grades because you want to, not because your parents are making you.

Extrinsic motivation: a desire to perform a behavior to receive promised rewards or avoid threatened punishment. Ex. you get good grades because you get paid for As or because your parents will ground you if you get bad grades.

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
Basic idea	Organisms learn associations between events they don't control.	Organisms learn associations between their behavior and resulting events.
Response	Involuntary, automatic.	Voluntary, operates on environment.
Acquisition	Associating events; CS announces US.	Associating response with a consequence (reinforcer or punisher).
Extinction	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
Spontaneous recovery	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
Generalization	The tendency to respond to stimuli similar to the CS.	Organisms' responses to similar stimuli are also reinforced.
Discrimination	The learned ability to distinguish between a CS	Organisms learn that certain responses, but not others, will

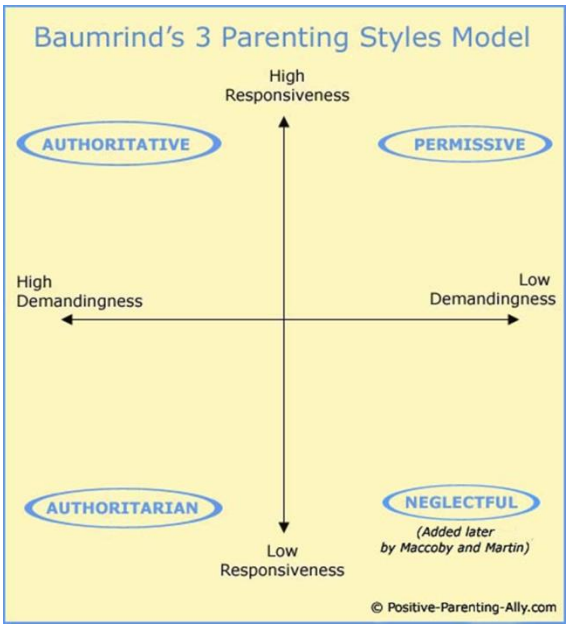
Parenting styles:

1. **Authoritarian:** set strict rules that children are expected to follow, failure to follow rules usually results in punishment; if asked why, the parent may answer “because I said so”.

2. **Authoratative:** a much more democratic style of parenting, rules are established and children are expected to follow them, but parents are more willing to explain why things are the way they are.

3. **Permissive:** have very few demands on their children, rarely discipline children.

4. **Neglectful:** barely act as a parent, children are more of a burden.



Observational learning: learning by observing others, also called **social learning**.

Modeling: the process of observing and imitating a specific behavior.

Mirror neurons: frontal lobe neurons that fire when performing certain actions or when observing another doing so. The brain’s mirroring of another’s action may enable imitation and empathy.

Memes: a relatively newly coined term that identifies ideas or beliefs that are transmitted from one person or group of people to another. The concept comes from an analogy: as *genes* transmit biological information, *memes* can be said to transmit idea and belief information.

Antisocial behavior: negative, destructive behavior that goes against the norms of society.

Prosocial behavior: positive, constructive, helpful behavior.

Learning Key People:

Ivan Pavlov: a Russian physiologist who pioneered the study of learning. He conducted one of psychology's most famous experiments in which he classically conditioned a dog to salivate at the sound of a tuning fork/bell. He set the foundation for the study of behaviorism.

John Watson: thought that human emotions and behaviors, though biologically influenced, are mainly a bundle of conditioned responses. He demonstrated this through his work on 11-month-old "Little Albert" by showing how specific fears might be conditioned. Watson made "Little Albert" afraid of fluffy white things. "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select…"

John Garcia: classically conditioned rats to avoid saccharin flavored water after injecting them with a nausea producing drug. He said you only need to be classically conditioned one time when it comes to biology. He also said you can have a time lapse between the NS and UCS.

Edward Thorndike: the psychologist on who Skinner based his work. He developed the Law of Effect (behaviors followed by favorable consequences become more likely, and that behaviors followed by unfavorable consequences become less likely).

B.F. Skinner: a leading behaviorist who studied how consequences shape behavior. Reinforcement strengthens wanted behaviors while punishment diminishes unwanted behaviors. Skinner worked with rats and pigeons in his Skinner Box/Operant Chamber.

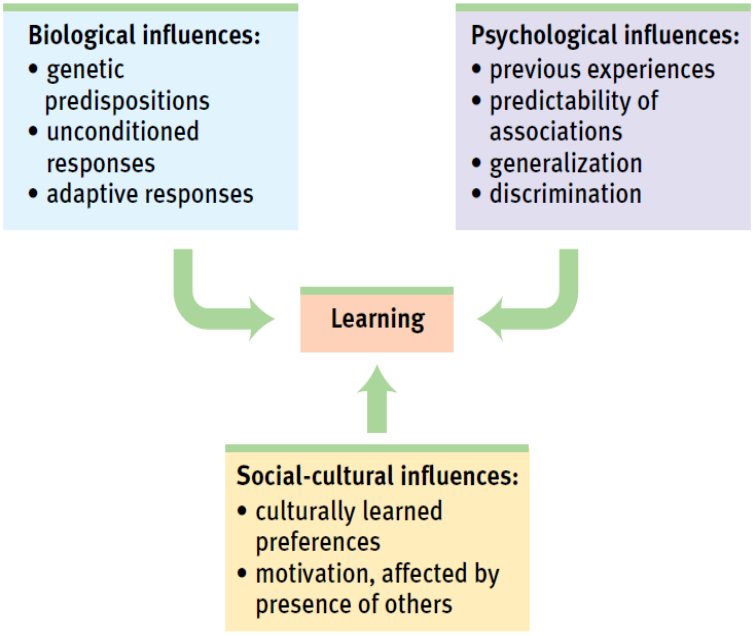
Martin Seligman: studied learned helplessness with dogs.

Diana Baumrind: developed the different types of parenting styles.

Edward Tolman: ran an experiment with rats testing latent learning and cognitive maps on a maze.

Wolfgang Kohler: studied Sultan the Chimp and insight.

Albert Bandura: the pioneering researcher of observational learning that included his Bobo doll experiment.


Biological influences:
• genetic predispositions
• unconditioned responses
• adaptive responses
Psychological influences:
• previous experiences
• predictability of associations
• generalization
• discrimination
Learning
Social-cultural influences:
• culturally learned preferences
• motivation, affected by presence of others