

Psychology & Learning

—

By Shelley D. Buck
Pickens High School



What is learning?

- **Learning**: a relatively permanent change in behavior based on experience.
- According to behaviorists who developed early learning theory, behaviors must be **observable**
- There are three main theories of learning:
 - Classical Conditioning (CC)
 - Operant Conditioning (OC)
 - Social Learning/Modeling
- **Associative Learning**: behavior changes in response to a stimulus (both CC and OC)

Learning - Part 1

Classical Conditioning



Ivan Pavlov

- *Ivan Pavlov* was a Russian doctor studying the process of digestion
- Became fascinated by the involuntary salivation response in dogs
 - Dogs learned to salivate to the sound of the cabinet holding their food opening
 - Pavlov trained the dogs to salivate to the sound of a bell, a light, etc.
 - Dogs trained to have an involuntary response to a stimulus
- Pavlov's research would lead to learning theory of *Classical Conditioning*.

PG



How does Classical Conditioning Work?

Key Terms to Know, Part 1:

Neutral Stimulus: a stimulus that does not initially elicit any unconditioned response.

Unconditioned Stimulus (UCS): an event that elicits a certain predictable reaction without any previous training

Unconditioned Response (UCR): a natural reaction to a stimulus

In Pavlov's Lab:

Neutral Stimulus = Tuning Fork

Unconditioned Stimulus = Food

Unconditioned Response = Salivation

Initially, the dog did not salivate to the sound of the tuning fork. The dog salivated to the smell of food.



How Classical Conditioning Work, Part 2

Key Terms To Know, Part 2:

Conditioned Stimulus (CS): a once neutral event that results in a specific reaction after training has occurred

Conditioned Response (CR): a learned reaction to a stimulus

In Pavlov's Lab:

Conditioned Stimulus: Sound of a tuning fork

Conditioned Response: Salivation

*Pavlov began to strike a **tuning fork** before giving the dogs **food**. The dogs began to associate the sound of the **tuning fork** with getting **fed**. Soon, the dogs began to **salivate** at the sound of the tuning fork before any **food** had been provided.*



An Example of Classical Conditioning:



Let's Demonstrate!

As I read a random list of words, every time you hear the word CAN taste the lemon powder.

What should begin to happen over time?

Quick Check!

1. What is the neutral stimulus at the beginning of the demonstration?
2. What is the unconditioned stimulus (UCS)?
3. What is the unconditioned response (UCR)?
4. What becomes the conditioned stimulus (CS)?
5. What becomes the conditioned response (CR)?

PG



On Your Own Now!

1. What is the neutral stimulus at the beginning of the video clip?
2. What is the unconditioned stimulus (UCS)?
3. What is the unconditioned response (UCR)?
4. What becomes the conditioned stimulus (CS)?
5. What becomes the conditioned response (CR)?

Scenario Activity

Unconditioned Stimulus (UCS): an event that elicits a certain predictable reaction without any previous training

Unconditioned Response (UCR): a natural reaction to a stimulus

Conditioned Stimulus (CS): a once neutral event that results in a specific reaction after training has occurred

Conditioned Response (CR): a learned reaction to a stimulus

Expanding Classical Conditioning:

Generalization occurs when we begin to respond to a stimulus similar to the conditioned stimulus without any training

Discrimination occurs when we begin to respond differently to different stimulus.

If the stimulus (CS) is withheld for a long period of time, the response (CR) stops. This is **extinction**. The CS/CR relationship can be easily relearned (**spontaneous recovery**)

Key Experiments on Classical Conditioning:

- **John B. Watson & Rosalie Raynor**

- Conditioned an 11 month old to respond to a white rat with fear.
- Known as the **Little Albert Experiment**

- **O. Hobart & Mollie Mowrer**

- Conditioned boys who wet beds to get up when their bladders were full

Human Behavior & Classical Conditioning

- What are ways that we can be classically conditioned?
- Why is classical conditioning important to human survival?
- What are limitations to classical conditioning?

Learning - Part 2

Operant Conditioning



What is Operant Conditioning?

- **Operant Conditioning**: a type of learning in which a behavior is strengthened by a reinforcer or diminished by a punishment
- Pioneered by Edward L. Thorndike & B. F. Skinner
- **Thorndike's Law of Effect**:
 - Behaviors followed by a favorable consequence are more likely to be repeated than behaviors followed by an unfavorable consequence.

B. F. Skinner's Research

- Using an Operant Chamber (Skinner Box), Skinner taught animals to press a button or sensor bar
 - When the animal pressed the button, food or water was released
 - Food was used to reinforce the behavior Skinner wanted
 - Eventually, taught pigeons to walk a figure 8, play ping pong, and keep a missile on target by pressing a button.

How does operant conditioning work?

- **Reinforcement** - an event that strengthens the behavior it follows.
 - Ex. dog sits, it gets a treat
- **Shaping** - the OC procedure which reinforces actions as they get closer and closer to the desired behavior.
 - “Getting warmer, getting warmer...Game”
 - A child’s temper tantrums condition parents to give in to the child’s demands

Let's demonstrate
shaping! I need a
volunteer...



Two Types of Reinforcement

Positive Reinforcement

- Strengthening a behavior by **ADDING** a positive stimulus *after* the desired behavior is demonstrated
- Examples: food, candy, praise, stickers, etc.

Negative Reinforcement

- Strengthening a behavior by **REMOVING** an aversive stimulus *after* the desired behavior is demonstrated
- Ex. fastening a seatbelt to stop alarm in car

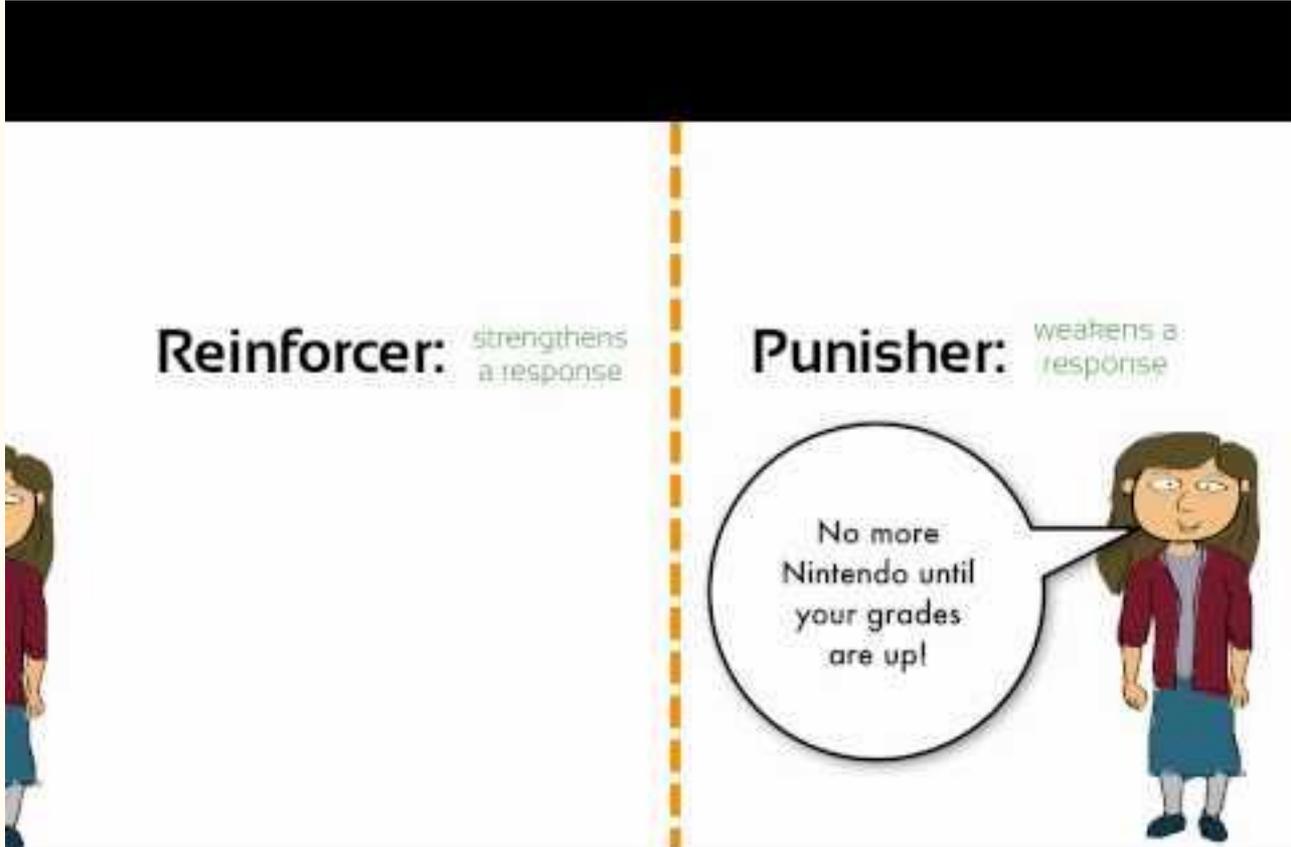
Negative Reinforcement
is NOT a punishment!

—

Reinforcement vs. Punishment

Reinforcer: strengthens a response

Punisher: weakens a response



No more
Nintendo until
your grades
are up!

More Types of Reinforcement...(sigh)

- **Primary Reinforcer** - an *unlearned* event that satisfies a biological need (naturally reinforcing)
 - example: getting food when hungry.
- **Conditioned Reinforcer** - a learned event that is linked to a primary reinforcer.
 - Light = food delivery

In the lab...

Desired behavior: Mouse presses button to turn on light.

How do we get a mouse to press a button to make a light flash?

1. Condition mouse to associate light w/food
 - a. Light flashes, give mouse food
2. When mouse moves towards button, give it food (shaping)
3. When mouse presses button, light flashes
4. When light flashes, food released (Positive Reinforcement)
5. Mouse knows to get food, must press button for light to flash

Operant Conditioning & Big Bang Theory

1. What is the desired behavior?
2. What is the reinforcer?
3. What is an example of punishment?
4. What is an example of shaping in the clip?



Reinforcement/Punishment Schedules

	Fixed	Variable
Ratio	Reinforcer given every so many. <i>For every 5 answers correct, get 1 piece of candy.</i>	Reinforcer given after an unpredictable number. <i>Slot machines and fishing</i>
Interval	Reinforcer given after as fixed time span. <i>After studying for 20 minutes, you get a 5 minute break.</i>	Reinforcer given at random times. <i>Checking for FaceBook postings</i>

Aversive Control:

- Refers to using unpleasant events to control behavior
 - Negative Reinforcement - removing something unpleasant to *increase (strengthen)* a behavior
 - Escape Conditioning - changing behavior to stop an unpleasant stimulus
 - Avoidance Conditioning - changing behavior to prevent experiencing an unpleasant stimulus
- Punishment - using unpleasant consequences to *weaken or decrease* repetition of a behavior.

Punishments

- Types of Punishments
 - **Positive Punishment** - weakens a behavior by adding an unpleasant consequence
 - Ex: spanking, detention, a speeding ticket, chores
 - **Negative Punishment** - weakens a behavior by taking away something desirable
 - Ex. restriction or loss of privileges
- Disadvantages of Punishment:
 - Increases feelings of aggression & resentment
 - Does not teach the correct behaviors

Social Learning



What is Social Learning?

- **Social Learning** - the process of changing behavior by observing or imitating the behavior of others.
- Two main types of social learning:
 - Cognitive Learning
 - Modeling
- Key research study on social learning - Albert **Bandura's**
Bobo the Clown Study

Albert Bandura - Bobo the Clown Experiment

What behavior was being observed?

How did children learn these behaviors?

What did the experiment teach us about social learning?

What are the implications about this study and other forms of observational/social learning?



Cognitive Learning

- **Cognitive Learning** - a form of changing behavior that involves mental processes and may result from observation or imitation of others
 - **Cognitive Map** - a mental picture of relationships between events or spatial relationship
 - **Latent Learning** - changing a behavior that is not immediate, but is demonstrated at a later time.
- **Learned Helplessness** - a condition in which failure leads to the belief that the situation is uncontrollable

Social Cognitive Learning

Why is social learning important?

What are the consequences of social learning?

How can social learning be both a positive and a negative?



Modeling

- Modeling - learning by watching and imitating others
- Modeling results in 3 main effects:
 - Imitation - we see someone do something, we do it immediately
 - Observational - a person watches what others do and then mimics some of the observed behaviors w/ modifications at a later date
 - Disinhibition - watching a risky behavior may result in likelihood a person will try it at a later date.

Example of Modeling



How do we
modify
someone's
behavior?

Behavior Modification
requires a systematic
approach using the
following:

- Classical Conditioning
 - Operant Conditioning
 - Social Learning/
Modeling
-

Impact of Online Video & Social Learning

