How do we Learn?

Chapter 6 Learning

CLASS OBJECTIVES:

- What is learning?
- What is Classical Conditioning?

How do you know you’ve learned something?
Can our beliefs and attitudes be a result of learning?

Learning

- Learning is a ____________
  - The process by which we acquire new knowledge

- Psychologists agree that most behaviors are learned.

Learning is

How can we measure learning?
Many principles of learning are based on the idea of conditioning...

**Conditioning**

- *Conditioning* refers to a procedure where

- *Conditioning* is just another word for

In the process of conditioning there is always a cause and effect pattern

- A *stimulus* is an event that has an impact on an organism
  - 

- A *response* is a
  - 

For every stimulus there is a response

- Stimulus (Cause)
- Response (Effect)

You get an A on the exam

We are all *conditioned* in some way

- Conditioned behaviors appear so automatically that they look like ________________________
  - Conditioned behaviors are similar to reflexes because they are also ___________________

**Classical Conditioning**

- Classical conditioning is one of the ____________________________
  - Ivan Pavlov
- Pavlov’s research was simple - to *teach* a dog to salivate in response to a bell.
Conditioning is synonymous with learning

- Pavlov called a stimulus that elicits a response without conditioning an _________________.

- The unconditioned stimulus ________________ produces a reflex.

Classical Conditioning

- In classical conditioning, ________________, is paired repeatedly with an UCS.

- After a series of paired associations the neutral stimulus will produce a similar or identical response.

- The neutral stimulus will become the ________________.

Unconditioned

<table>
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<tr>
<th>Unconditioned Stimulus</th>
<th>Unconditioned Response</th>
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<tbody>
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<td>Salivation</td>
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Neutral Stimulus: ______________, Response: ______________
Classical Conditioning

- An **unconditioned stimulus** (UCS) is presented with a neutral stimulus repeatedly.
  - For every stimulus there is a response!

- An **unconditioned response** (UCR) is a **response** to an unconditioned stimulus
  - It is an involuntary reflex that occurs without learning.

What will the response be?

| Food + Bell → | UCS | Neutral | UCR |

After the repeated pairings __________ occurs
Dog associated the bell with food; now the bell is a *conditioned stimulus*, because salivation occurs as a result of learning.

**Bell** \hspace{1cm} **Salivation**

A conditioned stimulus (CS) will *always* produce a Conditioned Response (CR).

For example: the salivation is a learned response to the sound of the bell.

**Classical Conditioning**

Let’s Review

During training:

- Neutral Stimulus: **BELL**
- Unconditioned Stimulus: **Food**
- Unconditioned Response: __________

After training:

- Conditioned Stimulus: **BELL**
- Conditioned Response: __________
Did you get it?
Test your understanding about conditioning!

Identify the US, UR, CS and CR for each of the following examples.

Identify the US, UR, CS, and CR

Alexander is four years old. One night his parents decided to light a fire in the family room fireplace. A burning ember jumped out of the fireplace and landed on Alexander's leg, creating a nasty burn. He cried because the burn hurt. A week later, when Alexander's parents started to light another fire in the fireplace, Alexander began to cry.

- US – ____________________________________________________________
- UR – ____________________________________________________________
- CS – ____________________________________________________________
- CR – crying

Identify the US, UR, CS, and CR

Bianca's mom followed the same routine before serving dinner – she would put ice in the glasses and then call "come and get it, dinner's ready." Immediately upon hearing those words, Bianca would quickly run down the stairs. After a while, Bianca would come running down the stairs when she heard the ice hitting the glasses.

- US – ____________________________________________________________
- UR – ____________________________________________________________
- CS – ice hitting the glasses
- CR – ____________________________________________________________
Identify the US, UR, CS, and CR

- Marco is driving to work during a heavy snowstorm when the brake lights on the car ahead of him come on. He hits his breaks but is unable to avoid hitting the car. He is badly shaken up in the accident. The next time he is driving in the snow he notices that he tenses up every time he sees brake lights come one ahead of him.
  - US – the accident
  - UR – ______________________________________
  - CS – ______________________________________
  - CR – tensing up

What do you think would happen if Pavlov rang the bell each day, but never followed it with food?

- The dog would learn to not salivate!
  - __________________________will occur...

- Present the conditioned stimulus repeatedly without the unconditioned stimulus
  - This gradually __________________________
Extinction is *not* forgetting!
Extinction is
not unlearning

Spontaneous Recovery

- The temporary _______________________
  _______________________
  _______________________
  - Requires no additional pairings, just the passage of time.

Back to Emily

- With our help Emily stopped thinking about James when she smelled *Polo* cologne... because of our knowledge of extinction.

- HOWEVER... Six months later, while walking through the cologne department at Macy’s, Emily smells *Polo* cologne and immediately thinks of James...
  - this is *spontaneous recovery*
Can Emotions be Conditioned?

Human Conditioning

Watson and Rayner (1920) conditioned an 11-month-old infant named Albert—this became known as

Through the process of Classical Conditioning Baby Albert was conditioned to fear...a lot.

- This experiment is now considered unethical
Baby Albert was initially conditioned to fear white rats, but the fears were expanded to include:

- fur

Classical Conditioning in Humans

- After many pairings:

Humans experience conditioned emotional responses, which explains many complex behaviors

Likes, dislikes, prejudices and fears
More Classical Conditioning

- **Stimulus generalization** occurs when the conditioned
  
  - Example: fear of blood

- In __________, an organism learns to respond only to a specific stimulus. (The opposite of generalization)
  
  - Example: Different bell tones (Pavlov)

The Garcia Effect

- The **Garcia effect** is a dramatic example of classical conditioning in everyday life.

- John Garcia (Garcia & Koelling, 1971) gave animals specific foods or drinks. He then induced nausea in the animals.

- Many people who have experienced food poisoning can relate to this **stimulus discrimination**!

What’s Next?

- Can we learn any other way?
  
  - Operant conditioning and Social Learning