Psychology 101

Memory

Our ability to recall...
...our name
...who won the Superbowl
...how to ride a bike
...what we just read in our Psychology book
...past events

What is a memory?

- Memory
  - persistence of learning over time via the storage and retrieval of information
- What must happen for something to be remembered?

Stages of Human Memory

- 3 steps to a memory
  - Encoding
    - Getting information into the brain
  - Storage
    - Retaining that information
  - Retrieval
    - Getting the information back later

Are all memories the same?

- Do we have different memories?
- What about different memory systems?

Atkinson Shiffrin Model
Different types of memory

- Sensory Memory
  - Iconic (visual) and echoic (sound) memory
  - Lasts 2 seconds or so
- Short term memory
  - Also known as working memory
  - Lasts for seconds to minutes
- Long term memory
  - Lasts for long periods and possibly forever

How do we encode information?

- Automatically:
  - Process where things are, the sequence of events, how many times something happens
- Effortful:
  - Rehearsal
  - Spacing effect
    - It is better to rehearse over a period of time rather than all at once

Dog

Green

Sleep

Google
Which do you remember?
- What patterns do you notice?
- Serial position effect
  - We tend to recognize the first and last items most easily
    - Primacy (first items) effect
    - Recency (last items) effect

What do we encode?
- Visual memories?
  - Mental images
  - Mnemonic devices
  - Kings Play Chess
  - On Fat Guys
  - Stomachs
  - Kingdom Phylum
  - Class Order Family
  - Genus Species
How do we organize information visually?

- XFB IYT NTZ ARI OBI RSC

Chunking
- Based on how you arrange these combinations, you can remember it more easily
- X FBI Y TNT Z A RIO B IRS C

Other Types of Memories

- Acoustic memories?
- Semantic (meaning) memories?
- Which is easier to remember?
- Memories with meaning are easier to remember

Storage

- Neural connections change when a memory is stored
- ECT disrupts recent memories but leaves older memories intact

Retrieval

- Recognition
  - Multiple choice tests
- Recall
  - Short answer

Is recognition easier?

- When shown pictures of former classmates, people correctly recognize 90% of the pictures
- People couldn’t recall most of their names though

Retrieval Cues

- Priming
  - Rabbit
  - More likely to say “hare” other than “hair” after primed with “rabbit”
- Contextual Effects
  - Cues surrounding the learning can help to cause recall or recognition of the memory
  - Taking a test in the same room the info was taught compared to taking a test in a different room from where the info was taught
    - Which group will do better?
Mood and Memories
- Moods become retrieval cues
- State-dependent memory
  - When something is learned by someone in one state, they are more likely to remember it when they go back to that state
  - Drunk people may forget where they put something until they are drunk again

Capacity
- Short term memory
  - 7 +/- 2 items
  - Miller’s Magic Number
  - We can keep approximately 7 items in short term memory fairly well

Forgetting
- Encoding Failure
  - Remember change blindness
- Storage Decay
  - "Use it or lose it"
- Retrieval Failure
  - Interference when the memory is attempted to be used

Interference
- Proactive
  - Earlier learning interferes with later learning
- Retroactive
  - Later learning interferes with recalling earlier learning

Can you recognize a penny?

Spanish and French
Amnesia??
- Anterograde
  - Problems recalling new information
- Retrograde
  - "soap opera amnesia"
  - Problems recalling old information

Extra Credit Assignment
- Watch the movie memento
  - Starring Guy Pierce in 2000
- How accurately does the movie portray amnesia?
- You will need to research amnesia online a bit to find out
- Diagnose the main character with the correct type of amnesia
- 1 page typed

False Memories
- Easy to create
- Beth Loftus: UC Irvine
- Created memories of Bugs Bunny at Disneyland

Beth Loftus continued
- Car crash experiment
- Two groups
  - Both saw a car accident on video (the same one)
  - Asked one group "How fast were the cars going when they bumped into each other?"
  - Asked the other group "How fast were the cars going when they crashed into each other?"
  - Group with "crashed" estimated faster than the "bumped" group

How to improve memory
- Tips for improving your memory
  - Study repeatedly to boost long term memory
  - Spend more time actively rehearsing
  - Make the material meaningful
  - Use mnemonic devices and imagery
  - Use retrieval cues if needed
  - Recall events quickly before you learn false information
  - Minimize interference (study before sleeping)