

Memory and Encoding

Automatic processing:

- details encoded on:
 - space
 - time
 - frequency
- practice can reinforce pattern searching abilities (ie reading backward is unconscious processing but needs practice)
 - brain makes effort to regulate abnormalities
 - Effortful processing
- requires selective attention
- Ebbinghaus
- researcher that studied memory
- Discovered the Spacing Effect
 - depreciate practice over many sessions results in better encoding of memories
 - a, ab, abc, abcd – new sessions cover previous sessions material
 - also called “chaining”
 - Serial Position Effect
- tendency to remember first and last members in a list easier
- Semantic encoding
- association between words and meaning
- crucial to language learning
- Acoustic encoding
- attachment of sound data to a memory
- Especially pronounced in words and pronunciation
- Visual encoding
- association of visual imagery with a memory
- Combined with semantic processing, very useful
- Used commonly with effortful processing
- mnemonics
- Shrink down long sequences into distinguishing characters and string them together into short words or sentences

Automatic Processing

Viral behavior = behavior that spreads quickly because others mimic behavior they see around them

Method of Loci

- associate motion through familiar scenes with pieces of information
- Used in ancient Greece to remember lengthy speeches

Peg Word System

- Associate a melody with a piece of information
- Very pertinent in advertising

Chunking

- Grouping bits of information into more manageable units that can be memorized as one
- Used for numbers often

Iconic Memory

- Sensory memory associated with visual imagery
- Used when you suddenly open your eyes and close them and see an afterimage

Echoic Memory

- Sensory memory associated with sounds
- lasts ~2sec

Long Term Memory:

- **Karl Lashley**
 - Worked on rats and long-term memory in 1950
 - Lesion cortex
 - Developed idea of memory trace or *engram*
- Synaptic Changes
 - Makes neurons more easily activated after brief rapid stimulation
- Emotional content helps long-term memories form

Explicit Memory/Declarative Memory:

- Memory of information one can consciously retrieve
- Stored in hippocampus(in limbic system)

Implicit Memory/Procedural Memory:

- Memory of information that happens spontaneously

Amnesia = severe memory loss

- Retrograde amnesia = loss of past memories
 - Associated with head injury
- Anterograde amnesia = loss of ability to form new memories
 - Associated with damage to the hippocampus

Priming

- Associated with William James
- Activation of a memory or association due to sense experience

Deja Vu

- French word for “already seen”
- Priming may subconsciously activate memories of a similar experience

Mood-Congruent Memory

- A tendency for memory recall of memories with a similar emotional mood to be easier or more frequent
- Caused by priming caused by emotional cues

State-dependent Memory

- Similar phenomenon to Mood-Congruent memory

Forgetting

The Forgetting Curve

- Hermann Ebbinghaus
 - Guy with the nonsense syllables
- 20 minutes after test, 40% gone
- After that, slow degradation

Presque Vu

- “Tip of the Tongue”
- Sensation of knowing the information is in the long-term memory, but cannot recall

Interference with Retrieval

- Proactive Interference
 - Old information supercedes new information
- Retroactive Interference
 - New information supercedes new information

Memory construction

Misinformation Effect:

- filling in gaps with wrong information
 - Information often biased
- Intentional?

Source Amnesia

- Also called “misattribution”
- Mistaking the source of a piece of information—you imagine it came from another person

Loftus Experiment

- Wording Effect: wording a piece of information in a certain way can change the perception of the information
- Experiment
 - Two groups: control and experimental
 - Experimental asked how fast two cars were going when they smashed/flew into each other
 - Negative words
 - Control group asked same question with neutral words

Memories of Abuse

- Can be repressed or even constructed
- Some genuinely forget

False Memory Syndrome

- A false memory forms the central part of someone's identity
- Can happen by therapist's trusting their clients who tell of trauma

Theories of how Forgetting Happens:

- Failure to encode information
- Interference by other memories
- Conscious forgetting
- Decay of connections

Improving Memory

- Retrieval cue frequency
- Consciously rehearse memories shortly after they occur, so misinformation doesn't tamper with your retrieval
- Minimize interference