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 pronounciation

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 mimick 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 meoldy 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

- 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 sylables
- 20 minutes after test, 40% gone
- After that, slow degredation

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 where 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 occurr, so misinformation doesn't tamper with your retrieval
- Minimize interference