Factors that influence Memory

Chapter 8
pp 257-270

Why mnemonic devices work
- Organization
  - Groups information into smaller “chunks”
- Retrieval cues
  - Provide several memory codes
    - Verbal and visual representations
    - Visual imagery: picture superiority effect
- Elaboration
  - Think about meaning
  - Notice relationships and differences
- Generation
  - Your ideas makes it personal

Limitations of Mnemonics
- Time
- How to deal with abstract material?
- Learning vs. retention
- Creative ability
- Interference – more material
- Doesn’t help memory in general
  - No help if fail to use technique
- Does not help understanding of material
- Need to practice mnemonics!

Influencing factors on Memory
- Need to pay attention to remember

Influencing factors on Memory
- Basic memory task:
  - Learn list of words – break – memory test
- Retrieval cues
  - Free recall
  - Cued-recall
  - Recognition
- How good is your memory for music lyrics?
  - Rhyming technique
  - Organized/chunking

Influencing factors on Memory
- Free recall
- % correct for each word
- Serial position curve
  - Primary
  - Long-Term Memory
  - Recency
  - Short-Term Memory
- Two independent systems of memory

Influencing factors on Memory
- Serial position
- Proportion of items correctly recalled

- Serial Position of Items in List

0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00

- Primary
- Long-Term Memory
- Recency
- Short-Term Memory
- Two independent systems of memory
**Primacy and Recency**

Portion of Serial Position Curve

- Slow presentation = more rehearsal = better LTM
- 30s delay after list presentation = reduces STM

**Influencing factors on Memory**

*Elaboration and Meaning*

- Memory instructions for study conditions
  - Shallow: Count # of vowels in words (physical)
  - Deep: Synonym for words (meaning)
- Memory Test:
  - Performance is significantly better for “deep” condition
- Effect of elaboration
  - Connection to existing knowledge
  - Notice similarities and differences
  - Provides cues
  - Provides distinct memory

**Encoding-retrieval match**

- Encoding-retrieval match
  - Effective cue
  - Context dependent
  - Homophone study
  - Transfer-appropriate processing
  - Study in same way you are tested!
  - Environment encoded with TBR info

**State dependent learning**

(Encoding-retrieval match)

- Grant et al. (1998)

**Why do we forget?**

Ebbinghaus (1850 – 1909)

- Memorized nonsense trigrams in serial order
- Tested at various intervals
- Forgetting curve
- Why?
  - Decay
  - Retroactive interference
  - Proactive Interference

**Proactive Interference**

(Old info interferes with new info)

- Peterson & Peterson (1959)

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- Percentage accuracy

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<th>Block 2</th>
<th>Block 3</th>
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<td>75</td>
<td>Percent of savings</td>
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<td>CVG</td>
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<td>12 trials/block</td>
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Why do we forget?

Retroactive interference
(New info interferes with old info)

- List learning with 1, 2, 4, 8 hr delay
- If awake during delay new info occurs before test
- If asleep during delay no new info before test

Begin to write only after I have given the signal, “Go”.

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<thead>
<tr>
<th>Butter</th>
<th>Candy</th>
<th>Bed</th>
<th>Table</th>
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<td>Rest</td>
<td>Sit</td>
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<td>Toast</td>
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RECALL

Answers

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<th>SWEET</th>
<th>SLEEP</th>
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Reconstructive memory

- Roediger & McDermott (1995)
  - Semantically similar lists
  - On 50% of lists have FALSE memory (e.g. “sleep”)
- WHY?
  - Gist memory
  - Schema
  - Familiarity
  - Memory reconstruction
    - Bartlett’s (1932) “The War of the Ghosts”

Memory Reconstruction
Loftus & Palmer (1974)

Film of actual accident

Leading question: “About how fast were the cars going when they smashed into each other?”

“Did you see broken glass?”

Memory construction
Flashbulb (FB) memory
Brown & Kulick (1977)
- Memory of emotional and surprising events
- Examples
  - JFK assassination
  - Space shuttle Challenger
  - September 11th
- Are flashbulb memories (more/less) accurate?
  - Where were you?
  - What were you doing?
  - How did you find out?
  - How did you feel?

Memory and Emotion
- Enhancement effect possibly due to:
  - Rehearsal
  - Distinctive
  - Elaboration
  - Attention
  - Adrenaline (?)
  - FB and normal memories: equal forgetting rate
  - FB retain emotion and vividness

Autobiographical memory
- Autobiographical memory
  - Personal life events
- First memory
  - Average 3-5 years old
  - Inverse relationship: Age 1st memory and intelligence
- Infantile amnesia: Why?
  - Brain development
  - Self-concept
  - Language

Autobiographical memory over Lifespan
Rybash (1999)
- Recency effect: remember events just happened
- Reminiscence bump: remember events from 11 – 24 yrs old

Common Memory Questions
- Why do some people remember better than others?
- Why are there differences in the things you remember well vs. forget?
- Does memory always decline with age?
- How can I improve my memory?
- Does sleep improve memory?
- Why is Alzheimer’s disease more common today?

Review: Chapter 8 Memory
- Mnemonic devices
- Why mnemonics work and their limitations
- Types of memory: smt/ltm; explicit/implicit; episodic/semantic
- What we’ve learned about memory from amnesia case studies
- Factors that influence memory
- Why we forget
- Reconstructive memory and schemas
- Autobiographical memory; Flashbulb memory
Memory

- Repetition
- Retrieval cues
- Dual-coding cues
  - Verbal and visual representations
- Organization
  - "Chunks"
- Notice relationships and differences
  - Use existing knowledge
- Generation
  - Your ideas make it personal

- Attention
  - Ensure encoding
- Elaboration
  - Think about meaning
  - Deep vs shallow processing
- Encoding-retrieval match
  - Transfer appropriate processing
- Serial position curve
  - Primacy vs recency
- Decay vs interference
  - Proactive vs retroactive