

Chapter 8 - Memory

I. Introduction

- 3 distinctive processes
 - encoding
 - storage
 - retrieval
- Adaptive (essential for life)
- Also can be maladaptive
 - **Example:** memories of trauma that effect our daily life

II. Encoding Info

- Getting the information in
- 2 major ways of encoding:
 - **automatic processing:** we make absolutely no conscious effort to remember
 - **Example:** remembered what you had for lunch but you didn't sit down and memorize I'm eating this and this and this.
 - **Effortful processing:** we put time, energy and effort into encoding the information. Expand conscious effort to get the information in.
 - **Rehearsal:** consciously repeat the information time and time again
 - Next in line effect: 6 people saying stuff example, you know
 - The serial position effect: you'll remember the first and last words, for example. better than the middle one. You'll remember the last word because of the recency effect, better for right after, and you'll know the first ones because of the primacy effect, you had more time to rehearse them.
 - Spacing effect: studying and restudying at different points in time is better than cramming.
 - Testing effect: when we're tested and retested on the material we remember it better, and retain it longer.
 - Ebbinghaus - First to scientifically study memory
 - Needing to come up with new things that he never encountered before, so he creating nonsense syllables, rehearse it and then test himself. Second day he tests himself again
 - based on research that when we focus on the meaning then test ourself it takes us 1/10th of the time to study it
 - **Elaborative processing:** you focus on the meaning not on memorizing the words
 - Create examples and stories on yourself.
 - Self reference effect: any info we link to ourself we are more likely to remember it
 - **Visual imagery processing:** create visual images
 - **Organizational processing:**
 - chunk the information together, break it down into pieces
 - Hierarchies
 - Categories

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III. Storage

A. sensory memory

- linked and associate with the senses
- duration is extremely brief
- Sperling (1960)
 - flash 12 letters
 - then asked participants to say letters, said only 4 or 5
 - subjects said the image of the letters faded from their mind
 - so then he refined: he flashed letters than played different pitches, different pitches correspond to different rows of the letters needed to say
- Iconic: visual sensory memory
- Echoic: 3-4 seconds, sound.

B. Short-term memory

- whatever we pay attention to in our sensory memory moves here
- known as working memory
- Definition: any information that is in your awareness and consciousness
- Capacity is limited, we can on average hold 7 items plus or minus 2
- Duration: 20 seconds max, unless you rehears it
- Studies done by peterson and peterson (1959) were even consonants, but in order to stop them from rehearsing they would ask them to count backwards

C. Long-term memory

- Maintain information for a long period of time and sometimes a life time
- **Long-term potentiation:** every time you learn something new, form a new memory, it is going to structurally and functionally change.
 - Structurally: synapses are strengthened, new synapses are formed, new dendrites are formed
 - Functionally: neurons involved with this memory are more capable of producing neurotransmitter and release more of it

Stress and memory

- Acute stress: when we go into fight or flight, stress hormones are releases; these strengthen encoding and memory
 - responsible for flashbulb memories
 - very vivid memories that are either surprising and or strongly emotional
 - * just because a memory is vivid does not mean it's accurate
- Chronic stress: everyday stress hormones are flowing in our bodies (ex cortisol)
 - cortisol kills neurons in the hippocampus which plays a role in learning and memory.

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- sometimes you're so stressed out it may effect new information we have, and we have problems retrieving it
- Long term memory is not a single system
 - we know this from people that had brain damages
 - we have 2 long term memory systems:
 - Explicit memory: memory with awareness and consciousness
 - Implicit memory: memory without awareness of consciousness
 - consciously we don't know it's there
 - cerebellum
 - Example: zapping handshake, even people with Alzheimer's form memories, or keyboard

CI. Retrieval: getting the info out

A- Definition:

- Retrieval cues: Any clue, hint, or prompt that's going to facilitate retrieving the memory
- Recall: a memory task where you're not given any specific clues.
 - Example: given an essay topic
- Recognition: given very specific cues and your job is to identify the correct cue
 - Example: multiple choice on exam
- Priming: when we are exposed to a specific stimulus it makes it easier to retrieve another stimulus from memory
- A rule for retrieve stuff from memory
 - At the moment of retrieval make sure that the circumstances at retrieval are the same as at the point when it actually happened

B - Context effect

- Make sure the context of retrieval is the same as the context at the moment of learning

C - Moods and memories

- State dependent memories
 - If you want to enhance your retrieval make sure your mood is the same at retrieval as what you learnt about
- Mood congruent memories
 - When we're in a happy mood we are likely to retrieve happy memories. And vice versa

CII. Forgetting

Why we forget:

- Medical; traumatizing events, Alzheimer's, etc.
- Ebbinghaus forgetting curve:
 - Discovered relearning; even though he forgets, relearning takes less time.

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5 key theories of why we forget

- Motivated forgetting: the info bring anxiety or embarrassment and we forget
 - we consciously push it away from our memory (suppression)
 - its done unconsciously (repression)
- Decay theory: the memory trace is going to weaken and fade away.
 - what you don't use you lose
- Retrieval failure
- Interference: pieces of info in memory will interfere with each other and making it more likely for us to forget
 - Two types:
 - Retroactive interference = backward acting
 - New information interferes with old
 - Proactive interference - forward action
 - Old info interferes with new info
- Encoding failure: havent stored the information

CIII. Memory construction

A - Misinformation and imagination effects

- our memory system doesn't work like a camera or tape recorder
 - human memories are constructed by ourselves.
 - our memories are going to change, added, taken away, distorted.
 - Elizabeth Loftus (famous memory researcher)
 - showed subject car accident and had them write down stuff
 - then they started asking questions like how fast was the impact speed, changed the wording. the harsher the word, the higher the impact speed.
- Misinformation effect: After we have experience or witnessed an event, if we're given misleading info, it is likely to seep into our memories and change what we remembered.
- Schema is a mental representation of something
 - Recruited student, had them wait in an office, and then write down things that were in there. They wrote down things that were not in that office.
- Imagination effect: imagination could create memories that don't exist.
- Arvin McGee: identified as a racist even though he had an alibi

B- Source amnesia

- We know the information but we don't know the source of the information
- We make an error about the source.

C - Discerning true and false memories

- Just because a memory feels real/emotion/consistent/vivid it doesn't mean it is real
- true memories have more details to them

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D- Children's eyewitness recall

E- repressed or constructed memories of abuse

prologue

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3

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11

12 (only emotions)