Chapter 8: Retrieval

How and why we remember… and how and why we forget

We don't remember because…

- We don't encode information in the first place
- We encode, but we don't store it well
- Storage decays

But even when we encode and store memories, we still forget…

- Recall, recognition, and re-learning

Retrieval
Getting information out of memory

Recall - Bringing previously learned information into conscious awareness, as in a fill-in-the-blank question on a test

Recognition - Correctly identifying previously learned information when exposed to it again, as in a multiple choice test

What affects retrieval: Context Effects
Ability to recall is improved when in the same context as the initial experience. **In an experiment, divers listened to words on land and underwater, for example.**

Context Affects Retrieval: State-Dependent Memory
Recall is improved when encoding and retrieval of a memory happen in the same emotional or biological or even physical state.

- Difficult to remember happy times when depressed
- May explain why after a happy experience, people view the world through rose-colored glasses
- Easier to remember PSY1101 concepts when testing occurs in same place as learning

Forgetting

- Encoding failure
- Storage decay
- Retrieval failure
    - Interference
    - "Motivated Forgetting" (repression)

Ways We Forget: **Encoding Failures**

- Information is never encoded into long-term memory
- Some memories cannot be encoded without conscious effort

Ways We Forget: **Storage Decay**

- Memories decay gradually if they are not used
    - Where "used" means regularly rehearsed
- Information is at first rapidly forgotten
- After a certain period of time, the forgetting levels off

Ways We Forget: **Retrieval Failure**

- Tip-of-the-tongue phenomenon...it's there and we *know* it's there… we just can't bring it (or all of it) into active memory
- The "??" tube from the ear

Consider: Tip-of-the-tongue phenomenon, interference, motivated forgetting

Proactive Interference

- Forward acting
- The **disruptive effect of prior learning** on the recall of new information
- A friend's email address that was learned long ago may interfere with learning the new email address

Retroactive Interference

- Backward acting
- The **disruptive effect of new learning** on the recall of old information
- Learning a password for a new bank card can disrupt recall of the password for your existing ATM card

Other Types of Memory Failure: Memory Construction and Source Amnesia
Source Memory: Knowing when,where, and how information was acquired
Source Misattribution: Retaining the memory of the event but not the context of the event

Amnesia

- **Retrograde -** Inability to access memory before a certain date
- **Anterograde -** Inability to form or consolidate new memories after a certain date
- Serious (long-term) amnesia relatively rare (except in daytime soap operas), but short term amnesia is common

Clive Wearing and Amnesia
Errors in remembering: misinformation effect - memories are clear, but not accurate

- Incorporating misleading information into the memory of an events
- Elizabeth Loftus asked:
    - "How fast were the cars going when they hit each other?"
    - "How fast were the cars going when they smashed into each other?"
- The reported recall of speed depended on how the question was asked
- **Eyewitness Testimony** is very often unreliable… people aren't lying, but they filter "memories through other experiences

Motivated Forgetting (Repression)

- Freudian defense mechanism that banishes an anxiety producing memory from consciousness
- Preserves self concept
- Memory may be retrieved through a cue or therapy
- Increasing number of memory researchers believe repression rarely occurs

False Memory

Is there really "repression", or can our memories mislead us?

- Increasing number of memory researchers believe repression rarely occurs
- … and what we are experiencing is "false memory" - reconstruction of memory has gone wrong
- False memories can be "planted"
- Imagining nonexistent events can create a memory
- Imagination inflation - imagining something and really perceiving it activate similar brain areas
    - People with vivid imaginations are more likely to have false memories
    - Children are very susceptible to false memory

Memory is reconstruction, not just retrieval (TED talk on **The Fiction of Memory)**

Practical Suggestions to Improve Memory

- **Use distributed (spaced) practice**
    - Cramming works short-term, but long-term recall/recognition is weak… and cramming can give interference to earlier learning
- **Make the material meaningful**
    - Unrelated lists are harder to remember: "attach" a concept to a visual image
- **Use active retrieval cues**
    - E.g., recall where on page a specific concept is located
- **Use mnemonic devices**
    - Grouping, chunking, hierarchies
- **Minimize interference**
    - E.g., don't study PSY1101 and PSY1102 in sequence
- **Sleep More**

- Lots of sleep helps memories consolidate overnight

- **Test yourself**

FACT OR FALSEHOOD?

The persistence of learning over time most clearly depends on memory	True
Memory storage is never automatic; it always takes effort	False
Shortly after hearing a list of items, people tend to recall the first items in the list most quickly and accurately	False
Children can better remember an ancient latin verse if the definition of each unfamiliar Latin word is carefully explained to the,	True
We are more likely to remember the word “fire” than the word “process”	True
When people learn something while intoxicated, they recall it best when they are again intoxicated	True
The hour before sleep is a good time commit information to memory	True
Learning a new ATM password will not block the recall of the old password	False
Repeatedly imagining a nonexistent event can lead us to believe that it actually happened	True
Children typically will repress any memory of having seen one of their parents being murdered	False