Notes Sept 14th / 15th

Sensory Memory

- Iconic
- Echoic

- SEIM (sensory, echoic, iconic, memory)

Short –term Memory

- 7 + or – 2
- Up to about 30 seconds with rehearsal!

  – Can be extended longer through using chunking or mnemonic devices

Long-term memory

- Info in STM must be rehearsed or utilized (effortful processing) in order to go into long –term memory storage

- Long-term Potentiation – a tendency for increased synaptic firing with less effort and increased receptor sites after repeated stimulation – this process allows learning and storage /retrieval of memory

Synaptic Changes

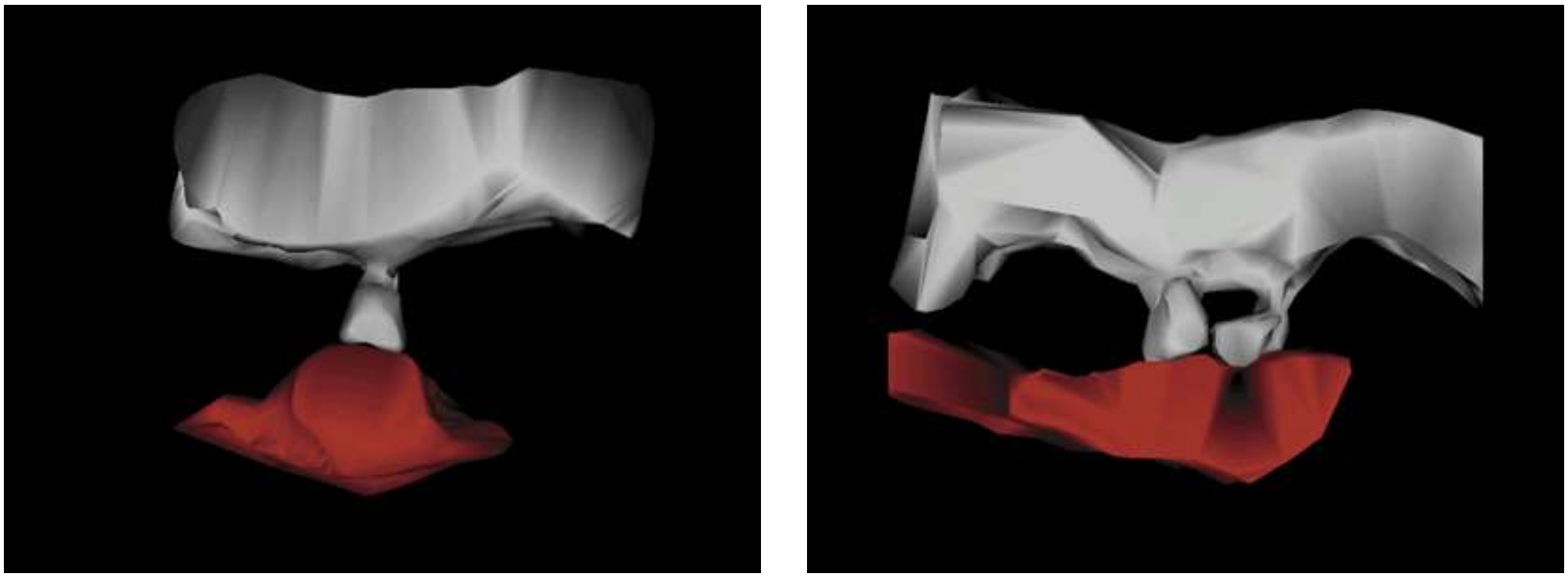


Figure 7A.13 Doubled receptor sites Electron microscope images show just one receptor site (gray) reaching toward a sending neuron before long-term potentiation (left) and two sites after LTP (right). A doubling of the receptor sites means that the receiving neuron has increased sensitivity for detecting the presence of the neurotransmitter molecules that may be released by the sending neuron.

Memory and emotion

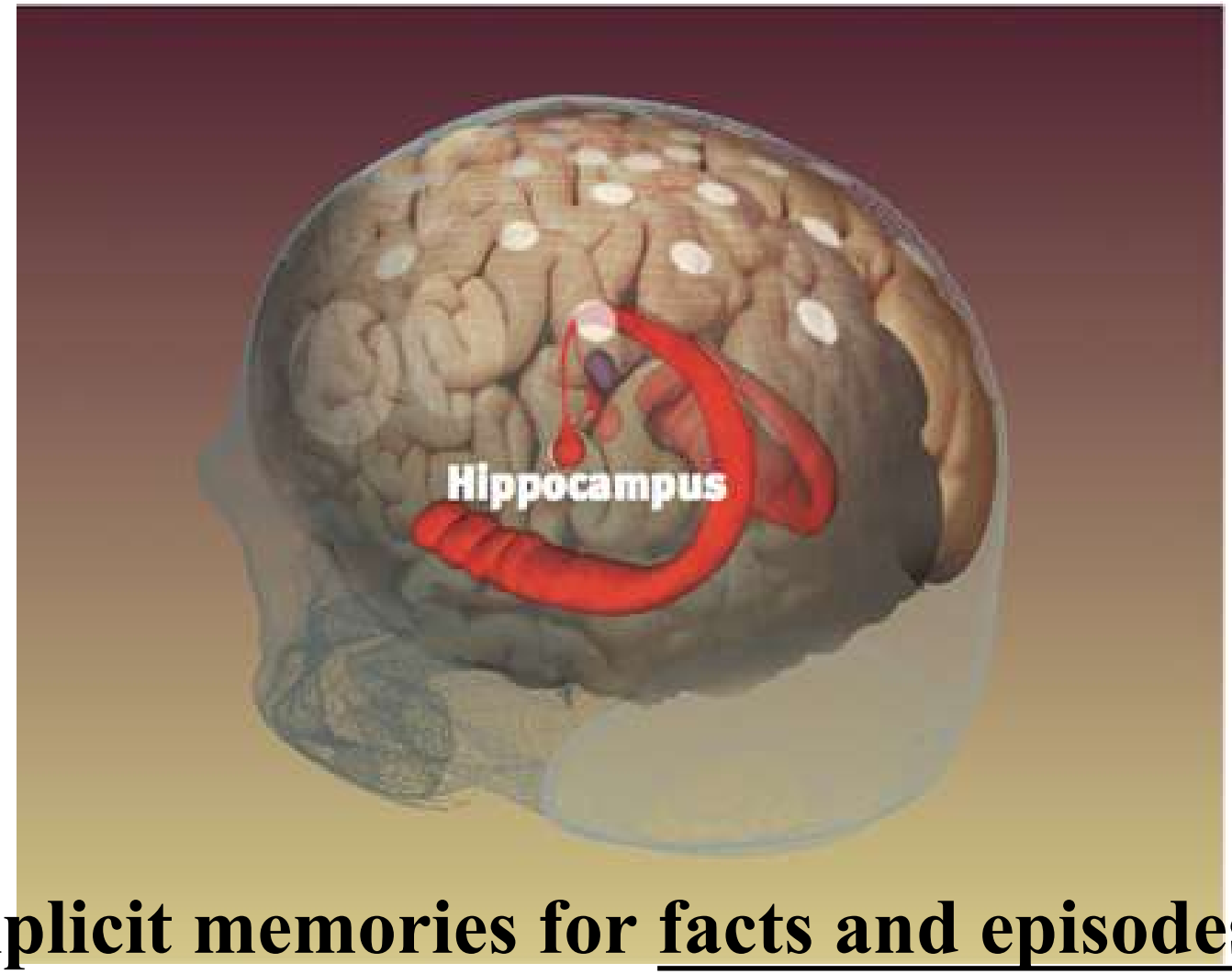
- Memories are more easily formed re: emotional events
  - Stress and hormones trigger glucose which signals brain that something important is happening
  - Amygdala which processes emotions also boosts activity in hippocampus

Where are memories stored?

- Hippocampus is involved
- No single area

- “connectionism”

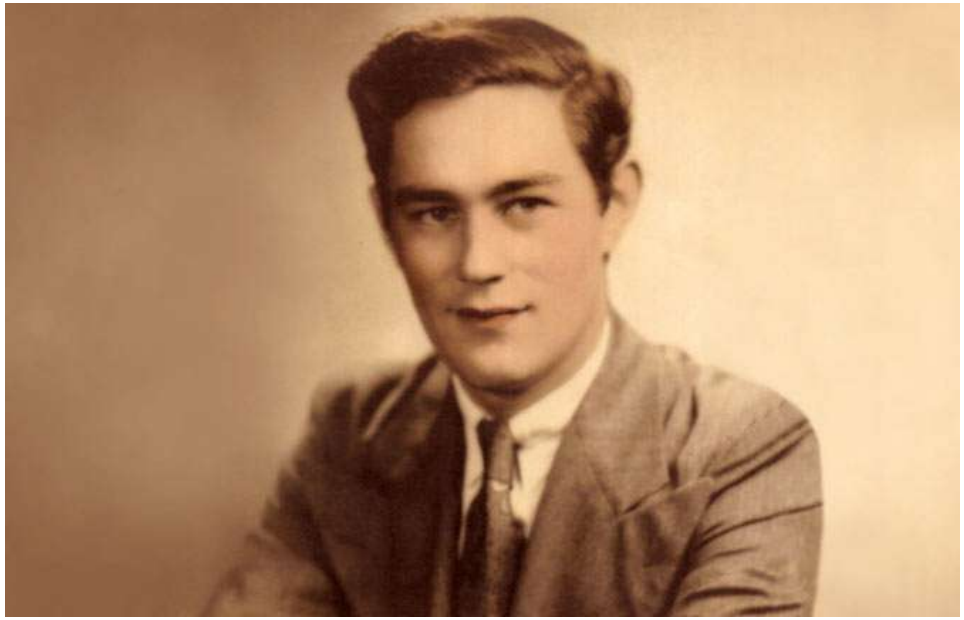
- Memories emerge from interconnected neural networks (patterns of activity)



Explicit memories for facts and episodes are processed in the hippocampus and fed to other brain regions for storage. Explicit memory

Procedural Memory is a separate system!

- Brenda Milner and Patient HM

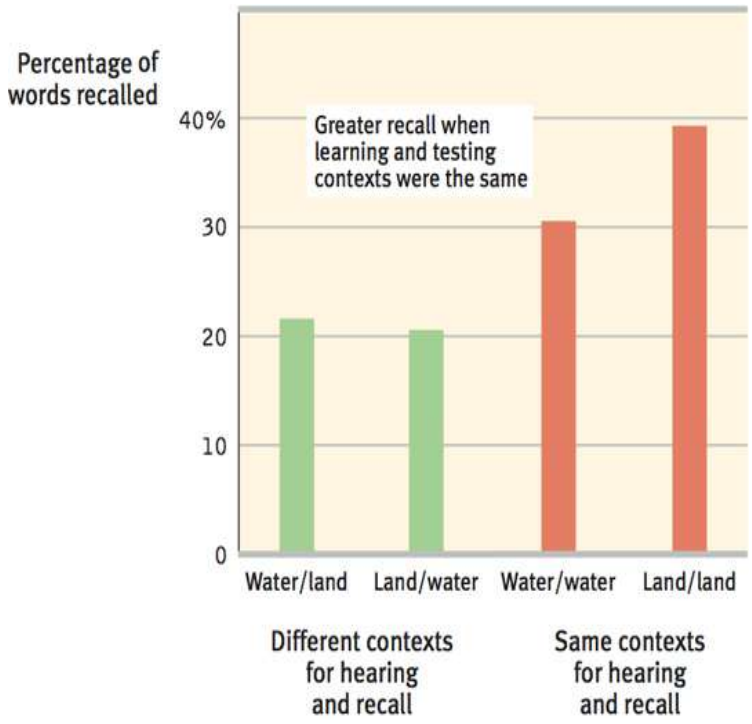


Procedural Memory or implicit memory

Muscle Memory, repetitive actions & procedures are stored here. Example – driving a car, using a pen, swimming, playing an instrument.

Long-term memory

- E&G Loftus 1980 – some flashbacks are invented
- We do not store memories in precise locations
- How Memories Work
- Lasky – 1950 – rats with parts of cerebral cortex removed were still able to remember a maze run



The effects of context on memory Words heard underwater are best recalled underwater; words heard on land are best recalled on land.

Why do we Forget?

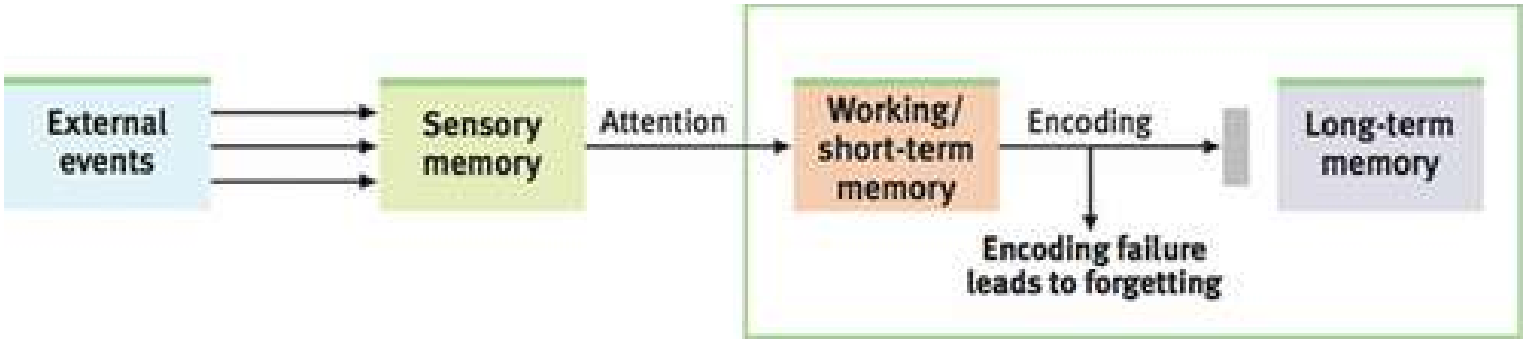
The “Seven Sins” of Memory

1. Absent –mindedness

2. Transience

3. Blocking

Encoding failure

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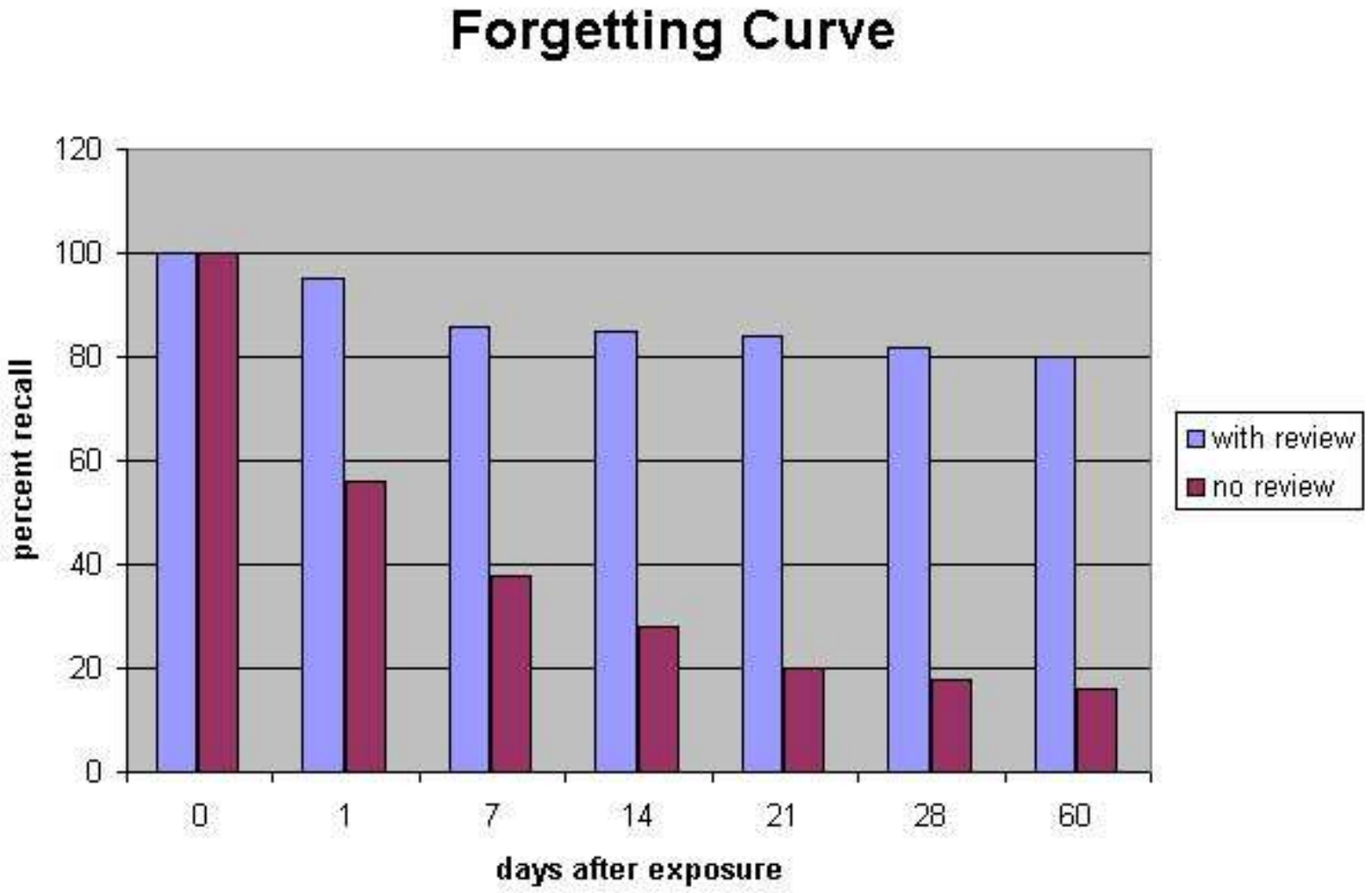
The “Seven Sins” of Memory

1. Absent –mindedness

2. Transience

3. Blocking

The Chart illustrates the power of reviewing material shortly after the initial presentation. Also, it shows how periodic review increases the retention of material over a period of time.



The “Seven Sins” of Memory

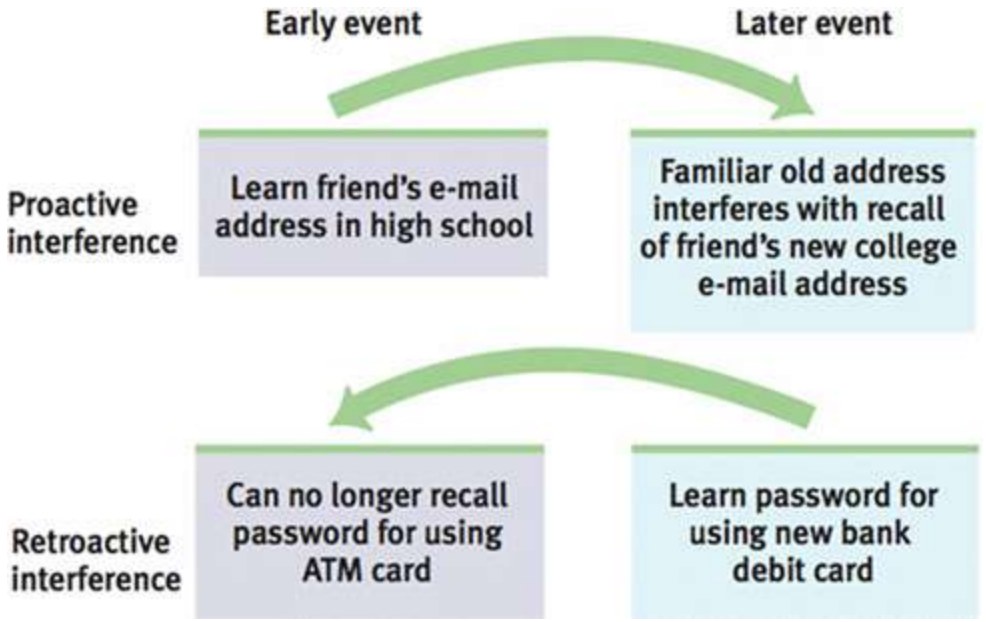
1. Absent –mindedness

2. Transience

3. Blocking

Retrieval Failure

- Interference – new and old information compete with one another
- Proactive vs. retroactive interference



Distortion

4. Misattribution

5. Suggestibility

6. Bias

Source Amnesia

- Hearing something and recalling seeing it
- Recognizing a face but not knowing from where
- Not knowing if you dreamed a remembered event or if it really happened
- Debra Poole and Stephen Lindsay (1995, 2001, 2002) - Preschoolers and Mr. Science
  - Kids remembered activities they took part in and some that they only read about as if they had experienced them all directly

7. Intrusion

Revision

- Michael Ross (1981) – people revise their own memories without knowing it
- Freud believed some memories are repressed unconsciously to protect our self-identity or avoid pain
- Payne and Corrigan 2007 – emotional memories are rarely forgotten – neutral memories are more likely to be forgotten

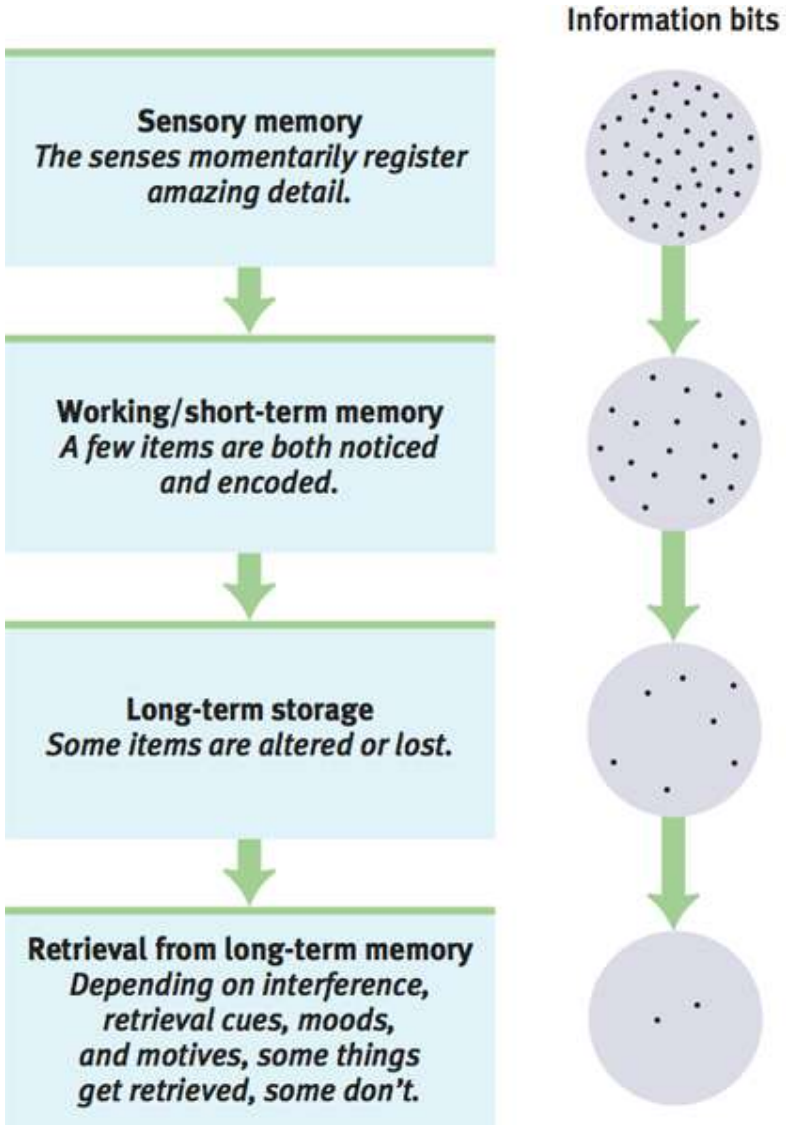


Figure 7A.25 When do we forget? Forgetting can occur at any memory stage. As we process information, we filter, alter, or lose much of it.

Constructing or “Reweaving” Memories

- We construct our memories of events from encoded information and fill the rest in with other assumed non-encoded details

False Memory vs True

- False memories feel real
- How one feels today influences your memory of how you felt in the past about both issues and personal events

Positive transfer

- Old information may help us learn new information

- Ex: Latin → French or even English vocabulary mastery
- *** Key to remembering new information is to relate them to things we already know

Salted Peas

- BBC Eyewitness

- Videos