



## Early Theories of Memory

Stage or Multiprocess Theories

Best described by Atkinson and Shiffrin

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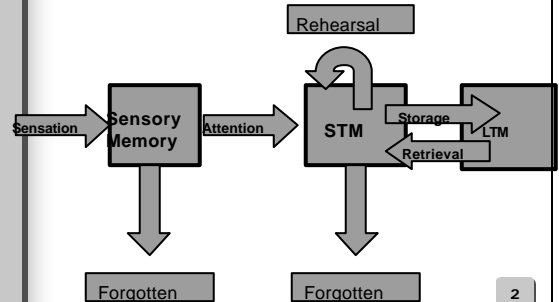
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## Early Theories of Memory



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## Sensory Memory

In sensory memory, sensory impressions are stored in a form similar to the original sensation.

Several subgroups.

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## Iconic Memory

Related to the visual system

Are visual images in the retina and the brain.

Lasts approximately .25 seconds.

Can last longer.

Why? Processing in Bipolar, Ganglion, Amacrine, and Horizontal cells.

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## Echoic Memory

Related to the auditory system

Auditory sounds that last in the Cochlea and Temporal Lobe.

Lasts 2 seconds or less.

Can last longer.

Why? Waves occurring in the cochlea

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## Short Term Memory

• Two components

• Events that just occurred are still in consciousness

• Are different from events that need to be brought back by recall from Long Term Memory.

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Information in STM can do  
One of Three Things.

It can be rehearsed and remain in STM

It is not rehearsed and is forgotten

It can go into the next stage (LTM)

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7 plus or minus two

- Miller,
- You can generally only store 7 plus or minus two items in short term memory.
- Lasts a short period of time (10 – 20 seconds).

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Major Implications for Test Taking.

- Cram, get test, start with question 1, question 2 by the time you get to question 3 which you had crammed for, the information is gone.
- Solution. Write down stuff on the exam as soon as you get it.
- Write the first item, then rehearse the list.
- Then write the second item, rehearse the list.

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Long Term Memory

- Is where information goes into the system and is retained
- Duration - apparently forever
- Penfield Studies

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How does Information get into Long Term  
Memory?

We use

- Rehearsal
- Rehearsal holds information in STM long enough for transfer to take place

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Elaborative Rehearsal

- Think of new information and relate it to information already stored in long term memory.
- Think of what things mean and how they relate.
- The better you organize the information, the easier it is to relate, and thus, store the information.

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Once Information is in Long Term Memory, How do we get it out?

- Many theories
  - Retrieval cues
  - Memory searches

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Retrieval Cues

- Are stimuli that open pathways to the memory.  
Many types of stimuli.
  - Words
  - Pictures
  - Sensations
  - Odors
  - Etc.

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Encoding Specificity

- The more specific the context where the item was learned is to where the item is to be recalled, the higher the probability of recall.

The more similar the context of learning and recall, the better the learning.

- Is like State Dependent Learning

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Second Theory Memory Searches

- People engage in memory searches.
  - Two types of searches.

Serial Searches

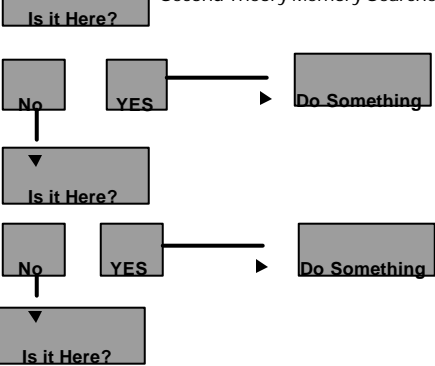
Check one item, if no, go to the next item.

Parallel searches

Compare many items at once.

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Second Theory Memory Searches



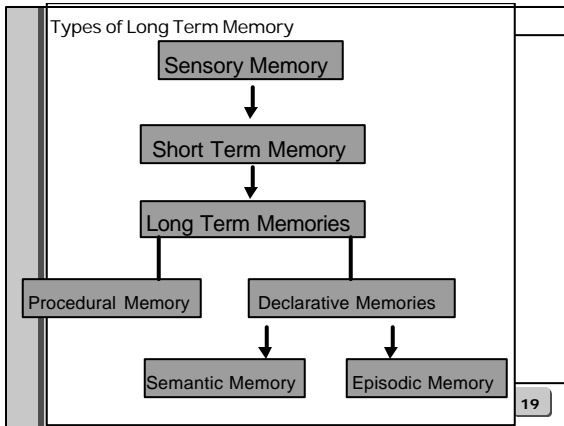
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Types of Long Term Memory

- Many types
  - Episodic Memories
  - Declarative Memory
  - Visual Memory
  - Procedural Memory

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### Episodic Memories

- Is a memory for a specific event.
- What happened, where did it happen, etc.

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### Declarative Memory

- Is memory for items of knowledge.
- Is independent of the particular occasion in which one acquired them.
- Is the sum of all acquired knowledge.
  - All words, symbols, facts of words, appearance of objects, principles, schemas, scripts. etc. we have.

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### Major Components

- Semantic Memory
- Is memory for words, meanings of words, and concepts

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### Strategies to use for Semantic Memory

- Parallel searches
- Network Models

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### Visual Memory

- Eidetic (I de Tic) Imagery (photographic memory)
- Individuals can recall detailed images of visual scenes for long periods of time
- Is very rare
- 5% of kids
- Less for adults
- Kids rely more on imagery than adults

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## Procedural Memory

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- Memory for physical things
- Riding a bike