


# General Psychology Psy 100

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## Memory

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For Brenda and friends.

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### What We Will Cover in This Section

- What memory is
- Sensory memory.
- Short term memory.
- Long term memory.



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### Memory: Definition

*Mental capacity to encode, store, and retrieve information.*

Indication that learning has persisted over time.

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## Memory Process

- **Encoding**
  - Forming the memory code.
- **Storage**
  - Maintaining stored information in memory over time.
- **Retrieval**
  - Recovering information from memory.

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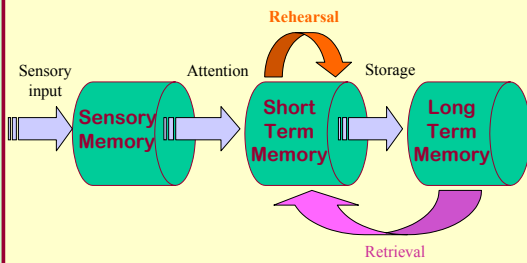
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## Dual Memory Model



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## Sensory Memory



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## Iconic (Visual) Memory

- **Sensory memory that allows for the brief storage of visual images.**
  - Capacity: Large
  - Affected by: brightness.
  - Lost by:
    - Decay
    - **Backward Masking**  
The ability of a stimulus to wipe out the sensory memory of a preceding stimulus.

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## Echoic (Auditory) Memory

- **Sensory memory that allows auditory information to be stored for brief periods.**
  - Capacity: Large
  - Loss by:
    - Decay.
    - **Backward masking.**

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## Short Term Memory



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**Purpose of STM**

- **Conscious Awareness.**
- **Integrate Information.**
- **Temporary Working Area.**
- **Hold Current Plans.**

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**Encoding in STM**

- **Selective attention**
  - Have to pay attention
- **How stored**
  - Verbal codes.
  - Visual codes.
  - Auditory codes.

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**Retention**

- **Maintenance Rehearsal**

Rote repetition of the material to be recalled.
- **Capacity: 7 +/-2 pieces of information.**
  - Telephone numbers.
  - Zip codes.

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## Incredibly Kool Demonstration

1. I will divide the class into two groups: Group A and Group B.
2. I will ask Group B to hide their eyes.
3. I will show Group A series of letters, then ask them to recall the letters.
4. Then I will ask Group A to hide their eyes.
5. Then I will show a Group B a series of letters to Group B and ask them to recall the letters.

### Demonstration

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## Chunking

The process of taking single items of information and recoding them on the basis of similarity of some other organizing principle.

KDKAWYEPESPNNBCCBS

KDKA WYEP ESPN NBC CBS

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## STM as Working Memory

- **Phonological loop.**  
Process that holds and maintains speech-based information.
- **Visual-spatial sketch pad.**  
Process that holds and maintains visual and spatial information.
- **Central executive.**  
Controls attention and coordinates information and mental processes.

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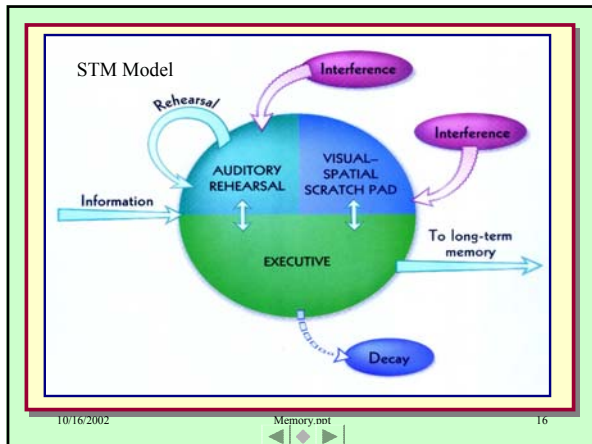
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### Retrieval: Accessing Information

- **Serial strategy**
  - When given a list of items it takes people longer to recall the earlier items.

Serial Position				
Fifth	Fourth	Third	Second	First
Easiest to recall			Hardest to recall	

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### Retrieval: Loss of Information

- **Decay.**
  - Degeneration of the memory trace over time. Limit is about 30 seconds.
- **Displacement.**
  - New information takes the place of old information.

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**Long Term Memory**



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**Encoding into LTM**

- **Encoding specificity.**
  - We remember information based on the context where it was encoded and stored.
  - Retrieval of this information is enhanced if the cues that were present when we learned it are there when we try to recall it.

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**LTM Storage: Rehearsal**

**Maintenance Rehearsal**  
Rote repetition of the material to be remembered.

**Elaborative Rehearsal**  
Reviewing material by expanding on its meaning, relating it to other things you are familiar with.

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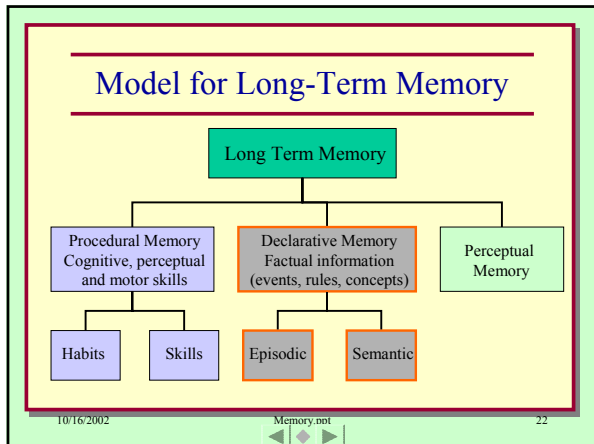
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### Storage: Semantic Memory

**Our collection of knowledge about words, symbols, concepts, and meanings that are held in LTM.**

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### Storage: Hierarchies

FISH		
Salt Water		Fresh Water
You eat	Eat you	Trout Bass Perch Walleye
Snapper Tuna Tilapia	Shark Barracuda	

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**Schema**

- *A cluster of interrelated concepts that organize and encode general knowledge of people, objects, events, and procedures.*
  - Information is stored based on meaning to us as individuals.

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**Storage: Episodic Memory**

- **Storage of events including the time and place where they occurred.**
  - Where you had lunch yesterday.

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**Storage: Perceptual Memory**

- **The storage of sensory information**
  - Involves what we see, hear, smell, feel, and taste.
  - Can be confused by things that are too similar.
  - Encoding verbally and perceptually strengthens the memory trace.

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**Retrieval from LTM**

- **Recognition**
  - Process of identifying a piece of information as being familiar.
- **Recall**
  - The process of retrieving stored information from memory without having the information present.
- **Tip-of-the-Tongue**
  - Knowing we know something but not being able to retrieve it.

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**Ebbinghaus**

- **Psychologist who studied memory and recall.**
- **Used himself as a subject.**
- **Memorized lists of nonsense syllables: HEJ, TUQ, POZ, JAQ, MAB.**
- **Then recalled the lists.**

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**Ebbinghaus Forgetting Curve**

Time Interval	Proportion Retained
20 minutes	1.0
1 day	0.65
2 days	0.55
6 days	0.25

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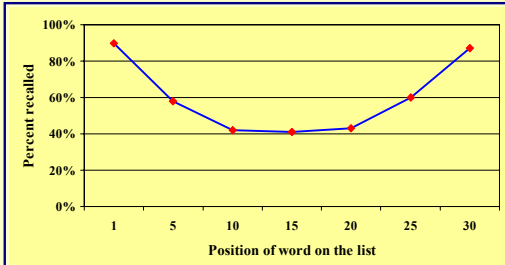
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## Ebbinghaus: Serial Position Effect



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## Retrieval: Cues

- Hints that help to access information in memory.
  - Visual
  - Sounds
  - Smells
  - Words

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## Constructive Memory

- The process of assembling information based on general types of stored knowledge in the absence of a specific memory representation.

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## Forgetting and Recall

Recall Condition	Learning Condition	
	Happy	Sad
Happy	Good	Poor
Sad	Poor	Good

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## Forgetting: Interference

**1. Proactive Interference**  
 Forgetting that occurs when old information blocks new information.

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## Forgetting: Interference

**2. Retroactive Interference**  
 Forgetting that occurs when new information blocks old information.

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**Other Issues**

- Emotionally charged situations
- Flash-bulb memories
- Amnesia
  - Retrograde
  - Anterograde
- Repression

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**The End**

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