MEMORY MODEL – ATKINSON & SHIFFRIN (1968)
Rapid consolidation: synaptic mechanisms

Three overlapping time courses for consolidation proposed by McGaugh

Multiple memory systems
Serial position curve: Primacy and recency effects
(Ebbinghaus)
Delayed recall with an interference task destroys recency

*Primacy effect*
NOTE THE RESULTS OF HIS BILATERAL MEDIAL TEMPORAL LOBE RESECTION AND THE REMOVAL OF THE HIPPOCAMPUS
Explanation

• Primacy effect – Due to lack of interference when memorizing the first part of the list.

• Recency effect – The last couple of words are remembered because they are still in working memory
- **Goal:** Determine how long non-rehearsed information stays in STM.
- On each trial, the subject sees three letters, followed by three numbers.
- Subjects must remember the letters while counting backward by 3’s from the number.
- Plot recall accuracy by time spent counting.
Brown-Peterson forgetting curve
Working memory Span.

Yours.
The general form of the relation between channel capacity and the number of independently variable attributes of the stimuli.
Double Dissociation

Performance on visual and verbal span tasks while performing a secondary visual or verbal interference task. Performance presented as a percent of span task performance when performed in isolation. Greatest interference when the secondary interference task is in same modality (e.g., visual span with visual secondary). Supports proposal of a working memory system for immediate memory that has separable subsystems for visual and verbal storage. Adapted from Logie et al. (1990). [Logie, R.H., Zucco, G.M., & Baddeley, A.D. (1990). Interference with visual short-term memory. Acta Psychologica, 75, 55-74.]
Baddeley and Hitch model
“Working memory”

Visualspatial sketchpad

Central Executive

Phonological Loop
Visuospatial sketchpad

- Closely related to visual imagery
- Used to encode nonverbal visual and spatial information.
- Disrupted by performing additional visuospatial tasks, eye movement, or irrelevant visual material (Baddley 1992)
The sketchpad has separate visual and spatial-sequential components

- Dellasala 1999 – Visual and spatial components
Baddeley and Hitch model
“Working memory”

Visualspatial sketchpad  Central Executive  Phonological Loop
Parts of the phonological loop

- Inner ear
- Inner voice
- Limited by recording length
Evidence for Phonological Loop

- Phonological similarity effect:
  - BBGTCDB is harder to memorize than FKYWMR

- Wordlength effect: easier to remember short words
  - then long words.
  - Pay, wit, bar, hop, sum vs. helicopter, university, television, alligator, opportunity

- Subvocal articulation, auditory noise, interferes with verbal memory
Baddeley and Hitch model
“Working memory”

Visualspatial sketchpad  Central Executive  Phonological Loop
Central executive

- Attentional control
  - Making changes to practiced routine. (Example: Altering driving to work routine when there is a traffic accident)

- Dividing attention
  - Multitasking

- Switching attention from one task to another
Baddeley-- 2000