

Memory Stores

Evidence for the MSM

In the late 60's, **serial position curves** (Murdoch, 1962) were used as evidence to support the MSM. Primacy effects were considered evidence of rehearsal and so long-term storage whereas recency effects were considered evidence of the short-term memory store.

The serial position curve was shown to occur regardless of list length and recency was removed if there was a delay between rehearsal and recall.

However, recency effects were demonstrated over long time intervals by Baddeley et al. (1977).

Recency is not reflect STM but a more general accessibility to more recent experiences.

If short-term memory is post-categorical (as suggested by Neath and Merikle) then it requires information (category membership of letters) from long-term memory = There must be communication.

The initial approach was the **information processing approach** which suggests that sensory processes pass through several stores: Namely, the sensory memory store, the short-term and then the long-term memory store.

We will see why this is not the case throughout the lectures.

Short-Term Memory

Multi-Store Model (Atkinson & Shiffrin, 1968)

VS. Working Memory Short term is a simple store, whereas working memory is a 'mental workspace'. STM is a part of working memory. Working memory allows manipulation to allow reasoning, learning and comprehension.

It has a limited capacity, temporary store and has a **speech like or phonological code (subvocal)**.

Baddeley (1966) Phonological Similarity: asked participants to perform **serial recall** of 4 types of words lists: phonologically similar, semantically similar and two opposite controls. Phonological similarity had an **inhibitory effect** whereas **semantic similarity facilitated recall**. This suggests that we have a phonological code that confuses spoken information through interference.

The Capacity: Magic Number 7 (Plus or Minus 2) Miller (1956) measured number of items recalled in correct order. However, items are difficult to define because letter can be grouped in to words (e.g. countdown). **People can use chunking to facilitate recall of specific tasks.**

Why is there a capacity?: Peterson & Peterson (1959) presented participants with consonant triplets (XRQ) and asked participants to perform a **distractor** task. Test recall worked at a function of the length of the distraction. Suggesting, decay is fast and so information requires grouping

Free Recall Studies where participants can choose to recall from any part of the list. **Postman et al. (1965)** found that if recall is not instant, the recency effect disappears and the primacy effect is maintained, suggesting that there is a **long-term memory** due to internal rehearsal of the first words in the list.

Keppel & Underwood (1962) varied triplets according to different categories (e.g. birds to colours) and this facilitates recall. Therefore, forgetting may not just be based on decay but forgetting may be based on interference.

Sensory Memory

Visual Iconic Memory (Sperling, 1960) Purely visual information lasts in the sensory memory store for approximately 250ms. It is **pre-categorical** (unanalysed, preserved in visual form). He briefly flashed letters and digits to the participants for 50ms each and asked them to report the items they remembered either using a **partial (given tone (high, medium or low) which indicated which row) or whole report (no cues)**. Recall was low (4-5) items in whole report but was significantly better in partial report (about 12 items), suggesting that sensory store holds about 4-5 items

However, Merikle 1980 found that categories (e.g. only recall digits for high tone, only recall letters low tone) elicited a report advantage in the partial report, suggesting that **iconic memory is not purely visual** but items are categorised.

Auditory Echoic Memory (Conard & Hull, 1968) is an internal 'echo' of the original sound. Broadbent (1958) inferred this from dichotic listening studies. Again, partial reports showed advantage where participants are asked to recall letters spoken in one of left, both or right ears.

Neath et al. (1993) found that suffix effect depends on context. Those told they would hear the same suffix from a human showed reduced effect of recency whereas those told they would hear the suffix from a **sheep** were unaffected. This suggests that suffix effect is **not always pre-categorical**. Expectations and context have a strong effect on suffix.

Conrad & Hull (1968) gave participants a phone number and asked them to read them aloud or silently. Those reading aloud showed strong **recency effect** compared to those reading silently, suggesting echoic persistence = pre-categorical auditory info.

Coltheart 1980 argued that there are three types of sensory memory: Neural, Visual and Informational Persistence. Using the **temporal integration technique** participants were shown two sets of images of squares and told to identify which dot is missing. Within 80ms, participants can detect the empty square. After 80ms, participants could not. **This is evidence of pre-categorical visual persistence**. Sperling used letters which is not separate from informational persistence.

Iconic memory decays very quickly, and this explains why the whole report elicited such low recall scores (because it was testing sensory memory). The partial report utilised the iconic memory (pre-categorical vision) Sperling viewed iconic memory as a **short-term sensory buffer** allowing time for sensory information to be recoded in a more categorical manner.

The Suffix Effect where a suffix (e.g spoken word at the end of the remembered list) drastically reduces recall of final items.