

Overview of Human Memory Models

Early models of memory

Some of the first noted research on human memory was conducted in 1890 by [William James](#). Based on his works, James assumed memory consists out of **two systems**:

- **primary memory**, which lasts for a **few seconds** and holds **in our consciousness** the perception of events in our environment, and
- **second memory**, which has **unlimited duration** and can be **brought to consciousness** if wanted.

A measure for the **capacity of short-term** (primary) memory was first introduced even a bit earlier, in 1887, by **Joseph Jacobs**, who tested the span of digits his students were able to remember. Under the criterion that at least 50% of the digits need to be remembered correctly, subjects he tested mostly remembered **about 7 digits**. What he also noticed is that this result can be improved by grouping the digits (for example in groups of three), or reading aloud.

Similar results were reported by Miller in 1956 in his famous work "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information"¹⁾, where he suggested human short-term capacity was determined by the number of *chunks* or cognitive wholes one can remember, no matter if it is a letter, digit or word. This number on average equals seven, and may vary usually between five and nine.

Bibliography

[Famous People and Their Contributions to the Study of Memory](#) Retrieved March 16, 2011.

¹⁾

Miller, G. A. The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63, 81-97. 1956.

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