

# Overview of Human Memory Models

## Early models and measures 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 [George Miller](#) in 1956 in his famous work “The **Magical Number Seven**, Plus or Minus Two: Some Limits on Our Capacity for Processing Information”<sup>1)</sup>, 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**.

This research increased interest in human memory research. [John Brown](#) in 1958<sup>2)</sup> and [Lloyd and Margaret Peterson](#) in 1959<sup>3)</sup> conducted research on information forgetting.

## Bibliography

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