

Coding, Capacity and Duration

Coding – Short-term memory (STM) is primarily an acoustic memory store. Information from the sensory store/ register (including visual information) is converted into sound and stored in this form.

Supporting evidence from Conrad (1964) found that errors participants made when trying to remember sequences of six consonants were similar in sound to the correct letter – b/d, p/v, m/n – despite the fact that the information had been provided visually. This supports the suggestion that visual information is converted into acoustic data in STM.

Semantic processing is used to help retain memories in long-term memory (LTM). Coding in LTM is the process of storing information based on its meaning rather than how it sounds or looks. It is the primary format used when keeping data in LTM over long periods. Baddeley (1966) concluded that information is acoustically encoded in the STM and semantically encoded in the LTM.

Capacity – Miller (1956) published a famous article entitled ‘The Magical Number Seven, plus or minus two’ in which he reviewed existing research into short-term memory. He said that we can hold seven ‘items’ in short-term memory, plus or minus two. Miller believed that our short-term memory stores ‘chunks’ of information rather than individual numbers or letters.

This can explain why we are able recall items like mobile phone numbers, which contain more than 7 digits. When we try to remember a phone number, which has 11 digits, we chunk the information into groups.

Duration – Peterson & Peterson (1959) investigated the duration of short-term memory by conducting a laboratory experiment with a sample of 24 psychology students who had to recall meaningless three-letter trigrams (for example, THG, XWV) at different intervals (3, 6, 9, 12, 15 or 18 seconds). To prevent rehearsal (practice) the students had to count backwards in threes or fours from a specific number, until they were asked to recall the letters.

They found that the longer the interval the less accurate the recall. At 3 seconds, around 80% of the trigrams were correctly recalled, whereas at 18 seconds only 10% were correctly recalled. Peterson & Peterson concluded that short-term memory has a limited duration of approximately 18 seconds. Furthermore, the results show that if we are unable to rehearse information, it will not be passed to long-term memory, providing further support for the multi-store model and the idea of discrete components.

