# Working versus Long Term Memory

**Two Concept Theory of Memory**

**Activation:** Momentary availability of a memory trace  
**Strength:** Long term durability of memory trace

<table>
<thead>
<tr>
<th>High Strength</th>
<th>Low Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Activation</strong></td>
<td><strong>Low Activation</strong></td>
</tr>
<tr>
<td>Well-learned things we are currently thinking about</td>
<td>Well-learned memories we are not thinking about</td>
</tr>
<tr>
<td>Things we have just stored for the first time</td>
<td>Things we cannot recall</td>
</tr>
<tr>
<td><strong>Working Memory</strong></td>
<td><strong>Long Term Memory</strong></td>
</tr>
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</table>
Retrieving Information From Long Term Memory

Size and Complexity and Duration
- Millions of experiences
- Permastore

Problem is Finding What Has Been Stored

Retrieval Cues
Anticipating Where You are Going to Need Information

Determinants of Accuracy
Elaboration
Context
Reconstruction
Retrieval

To Recall or Retrieve Information from LTM, That Information has to be ACTIVATED.

The Amount of Activation Determines Success of Retrieval

The Amount Depends on

1) Number of Retrieval Cues Associated with To Be Retrieved Information

2) The Strength of the Associations Between Retrieval Cues and To Be Retrieved Information

3) The NUMBER of Associations Between Retrieval Cues and To Be Retrieved Information
Context

Cues Present During Study and Retrieval

Encountering a Friend in Novel Situation

Encoding Specificity Principle

Retrieval Determined by Match Between Study and Retrieval Contexts

Context Effects In Memory

Location

State Dependence

Mood

....
Elaboration

Elaboration Increase the Number and Strength of The Associations Between the Cues Present During Study and the To Be Retrieved Material

Depth or Elaborateness of Processing

   Replication of Eysenck (1974) Done In Lab

Bower and Clark (1969) Experiment

Expertise And Elaboration
Levels Of Processing

Depth of Processing

• Maintenance rehearsal
• Elaborative rehearsal
• Focus on Processes During Study!!!!!!

Impact of Background Knowledge on Memory

Mnemonics

Expertise and Memory

Memory for a Baseball Game
(Hi vs Low Knowledge)

The Self-Reference Effect
THE BOWER AND CLARK EXPERIMENT

Task

Subjects studied and recalled 12 lists of 10 common unrelated words.

Then they had to recall all lists a second time cued by the first word of each list.

Narrative subjects were to make a story incorporating the words in the list.

Control subjects were told just to study each of the list and were given the same amount of time.

Results

Immediate recall: both groups did very well, 99% correct.

Delayed recall: Narrative 85%, Control 15%

Examples:

Lumberjack Dart Skate Hedge Colony Duck Furniture Stocking Pillow Mistress

A LUMBERJACK DARTed out of a forest, SKATEd around a HEDGE past a COLONY of DUCKs. He tripped on some FURNITURE, tearing his STOCKING while hastening toward the PILLOW on which is MISTRESS lay.
Mnemonics

Improving one's memory

All Mnemonics are Systematic Schema for Elaboration
  A Retrieval Structure
  Elaborated Links to This Structure
  Encoding Skills
Mnemonic Systems

Straight Elaboration
  Remembering names
  Location of Car in Airport Parking Lot

Rhymes

Peg Word Systems

Analytic Substitutions

  Method of Loci

The Greek Art of Memory

Visual-Symbols Systems

Memorize a SERIES of LOCI

Distinct

Naturally Ordered

Interacting Images at Each Location