Quadrant II – Notes

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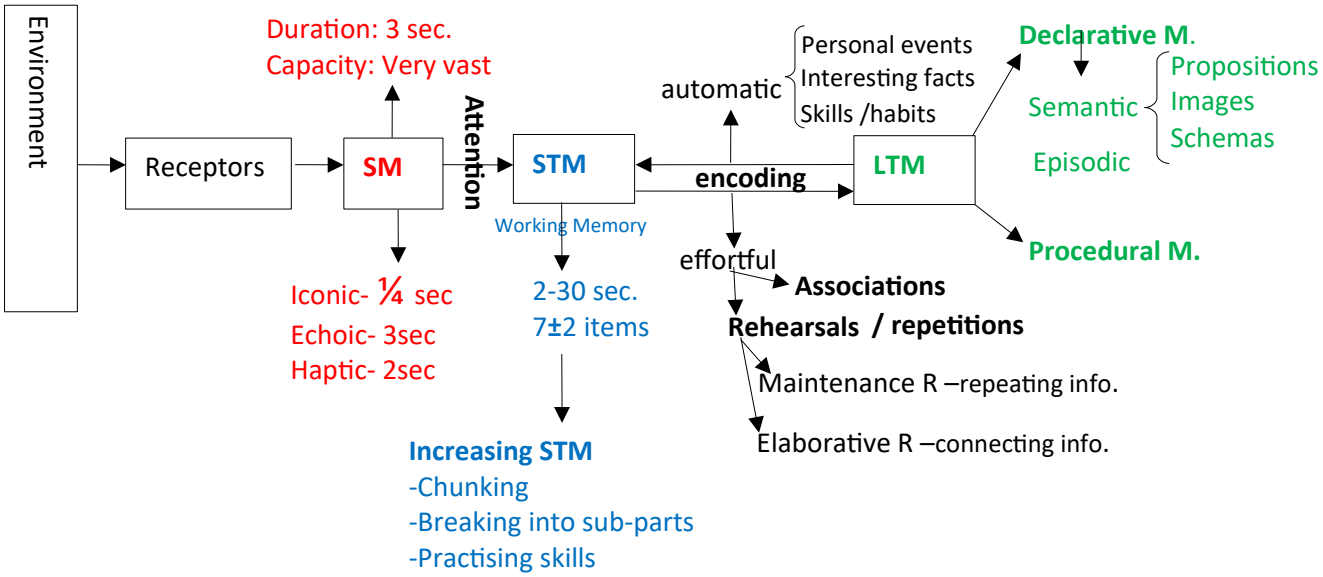
Managing Learning and Improving Memory

1. Organisation (most generally used technique). Research showed that organising learning material led to superior recall even when subjects were not asked to learn. Learning through organisation includes:

a) ***Conceptual Hierarchies:*** Those who learned a list of words in an organised form fared better than those who learned the list in an unorganised form. **b)** ***Deep Approach:*** Learning by organising with meaning is more effective than 'surface approach'. **c)** ***Constructing Knowledge Maps:*** This is a spatial- semantic display covering a particular area of knowledge where the physical layout demonstrates meaningful relationships between facts, terms or ideas within a learning task. In constructing a knowledge map a schema is developed which can form the basis for initial learning, revisions or essay writing. Paivio (1969) demonstrated that visual encoding, using concrete imagery (symbols and pictures instead of words) forms a stronger basis for LTM than verbal processes (memorising from written/spoken information). Such approaches not only improved recall in the specific area in which knowledge maps were constructed, but also transferred to their learning in other areas.

Knowledge Map for Information Processing Theory



2. Coding Techniques: They reduce memory load, allow for specific retrieval cues and prevent the effects of reconstruction and interference e.g. mnemonic devices. *Mnemonic Devices* aid memory by organising or 'tagging' information visually or verbally while you are learning it or by giving you a system for retrieving information (Glass and Holyoak, 1986). Three mnemonic devices that use Visualisation to improve memory are the *method of loci, the peg-word system* (Bellezza, 1982; Roediger, 1980), and the *substitute word system.* The fourth strategy, *the method of Word Associations*, use verbal organisation.

a) Visual strategies:

1. *Method of Loci:* A mnemonic device in which an idea is associated with a place or a part of a building. E.g. in American History you want to remember the main events leading up to the Declaration of Independence and the Revolutionary War, you could form a visual image of each item or event on your list and then put each in a specific place as you mentally walk through the room.

2. *The Peg-word System*: A mnemonic device in which peg words or easy-to –visualize words in a specific order, are associated with difficult-to-remember words or numbers. E.g. you can memorize a set of 10 visual images that can be used as pegs or markers on which to hang ideas. The easiest system of using peg words is to take 10 objects that rhyme with the numbers they stand for. Then form a graphic image for each of these objects.

One *is a bun*	***two*** *is a shoe*	***three*** *is a tree*	***four*** *is a door*	***five*** *is a hive*
six *is sticks*	***seven*** *is heaven*	***eight*** *is a gate*	***nine*** *is wine*	***ten*** *is a hen*

Now use the images to hold items may be from a list you want to buy at the grocery: milk, eggs, bread…Visualize the first item (milk) with a bun (*the bun soaking in a bowl of milk),* second - eggs with a shoe *(a giant shoe stepping on a carton of eggs),* third - *slices of bread hanging from a tree…*

3. Substitute Word System: A mnemonic device in which a word to be remembered is broken into parts and associated with easy-to-visualize words that sound like the word's parts. E.g. the word '*occipital' can be converted into Ox, Sip It, Tall* or *Exhibit hall.* Make a vivid image of either of these. You might see an ox on stilts sipping something through a straw or an exhibit hall displaying paintings (of the brain with the occipital lobes emphasized). Try creating substitute words for '*porcupine*' (poke you pine).

b) Word Associations: A mnemonic device in which verbal associations are created for items to be learnt. E.g. acronyms such as VIBGYOR will help you remember the colours of the spectrum.

In addition to forming words or sentences with the first letters of the items to be remembered, you can also make up a story that links the items. E.g. you want to remember some examples of endangered species for a test in environmental biology: manatee, jaguar, giant panda, blue whale, and black rhinoceros. Here is one possible story: "I hopped into my *jaguar* and drove to the toy store. The door man was dressed as a *giant panda*. When I went inside there was a *manatee* named Chef Boyardee and a *blue whale* without a tail. Then the lights went out and I tripped over a *black rhinoceros*."

3. Massed vs. Distributed Practice: Students often try to learn too much at one time by cramming. It is important to distribute study time. **Distributed practice** refers to spacing

your learning periods with rest periods between sessions. 'Learning by heart' is called **Massed practice** because the time spent in learning is massed into long, unbroken intervals.

4. Reviews Reviewing and rehearsing after a significant amount of time leads to reduced rate of loss of information. Reviews help integrate/consolidate material by increasing or strengthening semantic links with other knowledge, reducing the possibility of interference. Two reviews spaced out are better than two early or two late ones. Research shows that learned material is less likely to be forgotten if it is rehearsed at regular spaced intervals (Bahrick, 1993; Demster, 1988). Repeatedly review material until it is firmly locked in place.

5. Previews

Form advanced organizers

6. PQRST

(A study technique described Thomas and Robinson,1982).
Preview**, Q**uestion**, R**ead**, S**elf-recitation**, T**est.

Educational Implications

For information to be processed and retained, a teacher should:

- Create in the learner interest, a receptive mood and a desire to learn.
- Make reading, hearing and seeing an intentional exercise.
- Let students use more senses to receive information. Audiovisuals are better than only audio or visual. Rhythm is an important aid in learning.
- Develop associations between previous knowledge and new information.
- Encourage rehearsal, recitation, previews and reviews to enhance memory.
- Use mnemonics devices when the content has no inherent organization.
- Insist on Distributive learning instead of massed learning.
- Know that over-learning aids retention.
- Never present similar ideas in close succession because similarity can affect retention due to Interference.
- Explain clearly with sufficient drill for thorough grasping.

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Online Resources

http://psychology.about.com/od/memory/f/short-term-memory.htm