

The Fourth “R”

What Good Is Learning If You Don't
Remember It?

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Introduction

- Importance of remembering
- Memory consolidation process
- Improving our memory
- Teaching strategy
- Criticisms
- Conclusions

Importance of remembering

- Try to teach students how to think
- Teachers emphasise insight, creativity, communication skills, and inquiry learning
- Key is remembering, gives students intellectual competencies to draw on
- Propose a fourth “R”: **r**eading, **w**riting, **a**rithmetic, and *r*emembering

Working memory

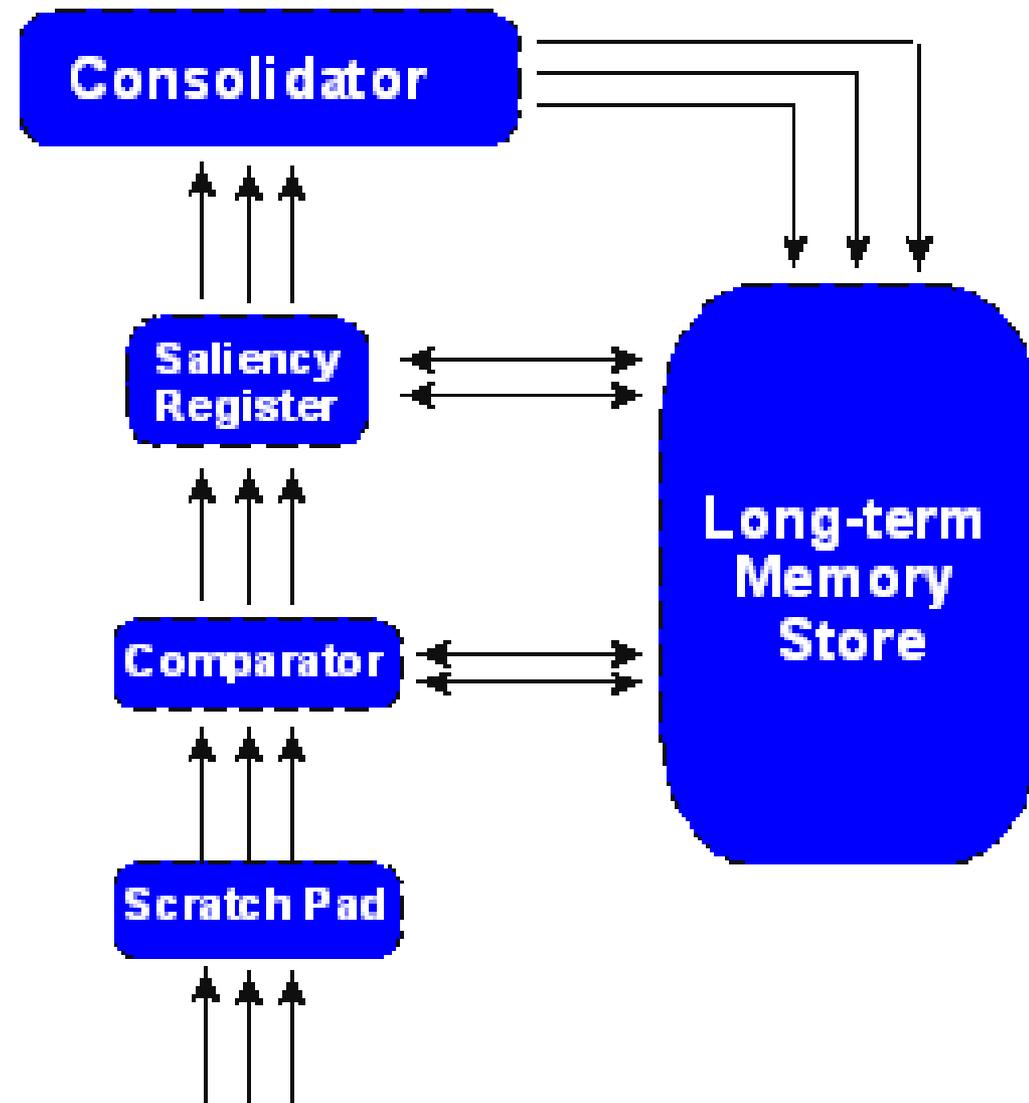
- Thinking memory is a “scratch pad”
- Memory enters scratch pad from new experience or from long-term memory
- When thinking “chunks” of scratch pad memory move into the thinking process
- Typically holds between 5 and 9 pieces of information – Miller's magic number. Experience allows these blocks to be bigger and more abstract
- Tight correlation between working memory, IQ and problem solving ability

Elements of remembering

- *Registration* requires attention
- *Association* with other memories
- *Rehearsal* of associations
- *Consolidation* to long-term memory, may be affected by embedded salience information or interfere with other new experiences
- *Cueing and recall* due to associations built up between memories. This may be affected by external events

Effective memorization model

- *Comparator* makes associations with what is already known
- *Saliency register* gauges information importance
- *Consolidator* rehearses knowledge, subject to interference from new information input



Memorization strategies

- *Paying attention* reduces interference
- *Organization* enhances associations
- *Chunking* information prevents exceeding Miller's magic number
- *Rehearsal* aids long-term memory
- *Good attitude* improves saliency
- *Getting more sleep* improves night-time consolidation

Weakness of rote learning

- Rote learning works by extreme rehearsal
- Rote learning can utilise chunking
- The information to be learnt can be organized
- It doesn't aid making good associations so the students have a poor understanding
- The process is boring so doesn't help increase the information saliency
- Once covered the information is not repeated in another context reducing the amount of rehearsal possible

Teaching game-plan

- Use a 10-minute rule
- Teach/learn a topic for 10 minutes
- Rehearse/apply that topic for 10 minutes through discussion, re-organization, an activity, or image associations
- Then introduce a new topic in the 10-minute format
- Optimizes attentiveness, association making, chunking, rehearsal, and can be made interesting

Criticisms

- Several claims are made on back of little evidence with no references
- 7-digit local telephone numbers chosen to be a Miller magic number
- Model for remembering not directly justified by any previous studies
- No analysis of other existing teaching plans

Conclusion

- Remembering is important but students are not taught how to learn
- Memory is affected by attentiveness, organization, rehearsal, attitude, and sleep
- Rote learning is inefficient
- A teaching plan based on the 10-minute rule is proposed