The Fourth “R”

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

William R. Klemm

Gareth Conduit
Introduction

➢ Importance of remembering
➢ Memory consolidation process
➢ Improving our memory
➢ Teaching strategy
➢ Criticisms
➢ Conclusions
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”: reading, writing, arithmetic, and remembering
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
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