Down Memory Lane: Memory and Learning Disabilities

The Job of Storing Information

- Step 1 – is understanding the sights, sounds, skills, or experiences that you might want to store.
- Step 2 – a large part of memory is deliberate so you need to figure out what you need to remember (attention and memory need to cooperate).
Developmental Functions

- Attention
- Memory
- Language
- Ordering – Temporal/sequential & Spatial
- Neuromotor function
- Social cognition
- Higher order thinking
Registering Things in Memory

- Once you have decided what you need to store, you register information in memory.
- Memory can be either short-term (temporary) or long term (permanent).
- When information is registered, you are putting it into short-term memory.
Short-term memory

- Some thing you will store long enough to use once (i.e., some one tells you a phone number).
- Complicated instructions you may only need to hold in memory until you act on them.
Long-Term Memory

- Information that is retained in memory permanently.
- For example, when you learn spelling words, important facts, etc.
- However, information like that must go through short-term memory.
Reconstructing Information

- When information comes into memory, you usually can’t fit everything in.
- Process of chunking information.
- Involves picking out important details for storage is called reconstruction.
- Consider listening to a story. You try to figure out what is important to you personally.
Depth of Processing

- Concentrate hard enough on what you are storing
- Use strategies (TOWER)
- Make sure it gets in (review, self testing)
Different Ways of Receiving Information

- Visual Memory...information in through their eyes (faces, buildings, places).
- Auditory Memory...registering what they hear.
- Sequential Memory...arranged in a sequence or definite order (remembering steps or directions).
To store information in memory...

- Try to understand the information well.
- Decide what’s most important to remember.
- Reconstruct information so that its most important parts can be registered in memory.
- Record information strongly – Depth of processing,
- Hold information in the right order or pattern.
Fleshing out memory systems

- Educational Leadership, Nov. 98 article *Memory Is a Two Way Street*
- Author identified five memory ‘lanes’ or pathways into memory that can help students retain information
Five Memory Lanes

- Semantic
- Episodic
- Procedural
- Automatic
- Emotional
Semantic Memory

- Controlled by hippocampus
- hippocampus does not store memories rather catalogues them
- this memory lane deals with language and is most relevant to education
- if you use semantic memory to retain information, you must process it repeatedly for long-term storage
Episodic Memory

- Hippocampus is like a filing cabinet with two draws, one semantic and the other episodic
- Episodic is location-driven: remembering where you were when you learned something can help trigger the memory... Where were you when you learned of the 9-11 attack?
Procedural Memory

- Procedural memory is found in a brain structure called the cerebellum
- This formation deals with posture, balance, and some memory
- Procedural memory is your 'how-to' memory
- Examples include riding a bike, driving a car, and tying your shoe laces
Automatic Memory

- The automatic memory is also found in the cerebellum...it is sometimes called the reflexive or stimulus-response memory
- This type of memory is triggered by such things as flash cards, music, and other repetitive devices that are not necessarily physical
- Some examples of information stored in automatic memory are the alphabet, times tables and song lyrics
Emotional Memory

- The amygdala, a structure in the forebrain, is in charge of all our emotional memories.
- Whenever information is received by the brain, the amygdala filters it for emotional content.
- If the perception has some emotional content then it is processed.
- Emotional memories will always be more powerful than other memories.
The Two-Way Street

- Each of the memory lanes is a two-way street and information can be stored in any of these lanes, which is the receiving part of the process.
- We can also retrieve information from the memory lane which is the retrieving part.
- We can teach in ways that help students store information in most memory lanes, and we can assess students in ways that help them better retrieve information.
Semantic Memory

- Often used in educational settings
- We expect our students to learn from text books, lectures, and hand-outs
- We must ‘chunk information’
- Mnemonic devises, mind mapping, time lines, graphic organizers, outlines are all successful tools
Episodic Memory

- If you learn something in one location, being in that location will often trigger that memory.
- Staring at a blank blackboard
- Strategies include using bulletin boards to post important info., change seating for each new unit (sitting in same location for year can cause confusion), make classroom as unique as possible
- Wearing costumes or hats help this memory
Procedural Memory

- Sometimes referred to as ‘muscle memories’ because they refer to physical movement.
- Where possible attach physical movement to learning
Emotional Memories

- Create emotional memories within your classroom with music, role playing, debate and your own enthusiasm.
- Whenever you can connect new learning to old memories in your students' brains, you may also be making an emotional connection.
- Neuroscientists have discovered that emotional memories are permanent: all they need is the right trigger.
A Strategy for Studying for Tests

What study strategies can I use so that I will know when I know enough?

How much time should I allow to store information?

What is the best strategy for me to rehearse?

What do I need to memorize, and what will I be able to figure out from what I know?

What is the most likely to be asked on the test?

What material will be covered on this test?

Memory Plan...