MEMORY

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THE SENSORY GATE

- THALAMUS
  - All sensory information comes to the thalamus first
  - It monitors the STRENGTH and TYPE of the impulses

THE SENSORY REGISTER

- The sensory register acts as a filter to allow the brain to focus on more important items

- The person uses past experiences to decide how important the information is

SHORT TERM MEMORY

- **1. IMMEDIATE MEMORY**
  - Like a clipboard – it holds information until we decide what to do with it
  - We can make it hold information
  - It can hold some information automatically

SHORT TERM MEMORY

- **1. IMMEDIATE MEMORY**
  - Can hold information for 30 seconds
  - Threats and emotions can interrupt the processing into memory

SHORT TERM MEMORY

- **1. IMMEDIATE MEMORY**
  - CHILDREN WHO FEEL SAFE AND EMOTIONALLY SECURE LEARN BETTER
  - Emotions consistently affect attention and learning
  - We need to help students learn to manage their emotions

SHORT TERM MEMORY

- **2. WORKING MEMORY**
  - CONSCIOUS PROCESSING TAKES PLACE HERE
  - LIKE A WORKTABLE WITH LIMITED CAPACITY
    - Can build memories
    - Can take memories apart
    - Can rework ideas for final storage somewhere else

SHORT TERM MEMORY

- Can only handle a few items at a time
  - Younger than 5 = minimum of 1
  - maximum of 7 chunks
  - Between 5 and 14 = minimum of 3
  - maximum of 9 chunks
- IT'S TEMPORARY 5 TO 10 MINUTES

LONG TERM MEMORY

- HIGHEST SURVIVAL RATE IF STORED QUICKLY
- EMOTIONAL ISSUES ARE EASILY STORED PERMANENTLY
- IF IT MAKES SENSE – MORE LIKELY TO BE STORED

LONG TERM MEMORY

- PAST EXPERIENCES ALWAYS INFLUENCE NEW LEARNING
  - Act as a filter for things that have more meaning
  - Must see a future use for the material
  - No meaning – less likely to store
- SELF CONCEPT CAN OPEN OR CLOSE ACCESS TO LEARNING

TYPES OF LONG TERM MEMORY

- NONDECLARATIVE – no words
  - Procedural
    - HOW to do something
    - No conscious attention is required

    - Perceptual skills – color discrimination, I. D. tones of music
    - Cognitive skills – figuring procedure for solving a problem
    - Motor skill – daily tasks
    - Emotional – create an emotional "gist"

TYPES OF LONG TERM MEMORY

- DECLARATIVE – uses words
  - Conscious
  - Names, fact, music, objects
  - Episodes – time and place where something happened
  - Knowledge of facts

LEARNING AND RETENTION

- REHEARSAL
  - NEED TIME TO PROCESS AND REPROCESS
  - NEED TIME TO REHEARSE

LEARNING AND RETENTION

- ROTE REHEARSAL
  - Used when exact recall is necessary
- ELABORATIVE REHEARSAL
  - Associates the new learning with earlier learning
- ALMOST NO LONG TERM RETENTION WITHOUT REHEARSAL

LEARNING AND RETENTION

- WHEN PRESENTED is important
  FIRST AND LAST ARE REMEMBERED BEST

- TEACH NEW MATERIAL FIRST
- MAKE SURE INPUT IS CORRECT
- KEEP LEARNING MOMENTS SHORT
- REST BETWEEN BLOCKS OF LEARNING

LEARNING AND RETENTION

- METHOD USED

  - TEACH OTHERS – 90% RETENTION
  - PRACTICE BY DOING · 75%
  - DISCUSSION GROUP · 50%
  - DEMONSTRATION – 30%
  - AUDIOVISUAL – 20%
  - READING – 10%
  - LECTURE – 5%

LEARNING AND RETENTION

- REPEATED PRACTICE CAUSES THE BRAIN TO ASSIGN EXTRA NEURONS TO THE TASK
  - BASICALLY PERMANENT
  - THE EARLIER, THE BETTER
    - YOUNGER LEARNER = EASIER CHANGES
  - USE IT OR LOSE IT

LEARNING AND RETENTION

- TEACHERS CAN HELP-
  - START WITH SMALLEST AMOUNT OF MATERIAL THAT WILL HAVE MAXIMUM MEANING
  - MODEL THE PROCESS STEP BY STEP
  - HAVE PRACTICE OCCUR IN THEIR PRESENCE OVER A SHORT PERIOD OF TIME
  - WATCH THE PRACTICE AND PROVIDE PROMPT, SPECIFIC FEEDBACK IF SOMETHING NEEDS TO BE CHANGED

LEARNING AND RETENTION

- GUIDED PRACTICE
  - PRACTICE MAKES PERMANENT
  - MAKE SURE THEY PRACTICE PROPERLY THE FIRST TIME
  - SUSTAINED PRACTICE OVER TIME INCREASES RETENTION