

Inquiring Boys: Using brain based strategies to develop learning skills

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The development of boys' brains

- Left vs. Right
 - Right side first, use both sides for spatial skills
 - Use only left side for verbal skills
- Amygdala vs. Hippocampus
 - Amygdala develops first, not connected to verbal center
- Corpus Callosum
 - Connection between two sides, perhaps smaller in boys
- Frontal lobes – late development
 - Executive decision maker

Effect of right/left brain development on learning

- Verbal skills develop later
 - Words may not be best method to learn
 - Stereotype of non-verbal boys
 - Boys get idea they are not readers
- Spatial skills develop sooner
 - Pictures may be best method to learn
 - Words are 2-D, they are more interested in anything that is 3-D
 - Targeting
 - Need to get physically involved in activity

Amygdala v. Hippocampus

- Amygdala, part of limbic system
- Hippocampus, part of long term memory

	Left (girls first)	Right (boys first)
Hippocampus (girls first)	Memory of nouns	Memory of pictures & topography
Amygdala (boys first)	Spelling, reading words, verbal intellect, vocabulary	Mathematical calculation & performance

Frontal Lobes

- Male frontal lobes may not fully mature until individual is 25 (or 30)!
- What do frontal lobes do?
 - Reasoned decisions
 - Control impulses
- Effect on cognitive processes
 - Planning
 - Attention
- Sophisticated cognition
 - Seeing the larger picture

Memory

- Memory, attention, and inhibition thought to have a common neural circuitry (ADHD?)
- Differential brain maturation
 - Young children use more of brain for memory probably due to lack of sophistication
 - Visual working memory matures before auditory working memory
- Gender differences
 - Boys mature later
 - Boys have quicker responses, more impulsive → more memory errors

What does a boy do when asked to study?

- Glances at the book
- Underlines the material (usually examples)
- Answers questions (under duress)

What is the problem with this?

- Reading all the assigned material takes too long
- Inactive method of studying – impulsive student does not pay attention
- Does not provide any organization for review
 - Has no plan
 - Cannot see the big picture – does not promote concept development

What gets in the way of studying?

- Boys think that ability not effort is what gets the best grades
- Fight-or-flight – boys learn best when they are stimulated, being quiet does not help
- Peer activities center on recreation not reading
- Anti-intellectualism of peer group and of society
- Anything else is more interesting

What should a boy do to study?

- Use energy bursts
 - Impulsivity can be a plus if student studies in short segments
- Use visual cues
 - Focus on pictures in text to provide retrieval cues for information
 - Visual display of information to enhance memory
- Develop memory skills early
 - Lyrics are easily acquired,
 - Link information to area of interest

Step 1: Develop Intention to Study

- Motivation?
 - This only works if boy **wants** to study
 - Boys will do what they find interesting
- Self-handicapping
 - Time wasters – TV, computer, i-Pod, cell phone, athletics
 - Needs to be aware that wasting time is intentional
 - Find out why and deal with it
- Nothing succeeds like success

Step 2: Learn to Organize Information

- Notes - readable
 - Small bits of information
 - Review frequently
 - Take notes from notes
- Underlining/text notation
 - Learn difference between concepts and examples
 - Learn to use book/notes as a framework for studying
- Set goals

Step 3: Use Time Effectively

- Schedule study time and free time
- Study until concentration limit is reached, then shift gears – make sure that student does not spend too much time on easy subjects
- Learn to use “lost time”
 - Commuting, waiting in line, waiting for an appointment
- Use calendar function of computer or phone to remind about upcoming events

Teaching strategies to help boys learn

- Do not start with words
- Incorporate movement
 - Preferably student movement
- Start with activity linked to subject
 - Show pictures/graphs/charts
 - Hands-on activity
 - Touch materials
 - Manipulate materials
 - Relate subject to current/real events
 - Provides visual hook for information

Language Arts strategies

- Tie material to examples where men use reading skills in the real world
- Learn vocabulary by writing definitions
- Focus on the action in the material first, characters second
 - Battles before politics
 - Plot before theme
- Use technology to ease transition into writing
- Design learning materials with the end in mind

Other strategies

- Spatial Skills
 - Maps, flow charts, scale models
 - Perceptual speed – slow reading and reading out loud (standing)
- Mechanical Reasoning
 - Use appropriate items to teach how to take things apart and put back together – words in sentences, sentences in paragraphs
- Peer Influence – use group challenges
- Humor
- Let them be in charge

Boys will learn

- Get them engaged – whatever it takes
- Teach them the skills, many boys don't study well because they don't know how
- Use cooperative groups (well supervised) for long term projects
- Structure your course so that it provides room for movement and action
- Teach older students how to translate teacher instructions into actions that work well for them