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

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<tr>
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<th>Left (girls first)</th>
<th>Right (boys first)</th>
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<td>Hippocampus (girls first)</td>
<td>Memory of nouns</td>
<td>Memory of pictures &amp; topography</td>
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<td>Amygdala (boys first)</td>
<td>Spelling, reading words, verbal intellect, vocabulary</td>
<td>Mathematical calculation &amp; performance</td>
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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