

# Gendered Education

Abigail Norfleet James, Ph.D  
ASCD/San Francisco  
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# Accepted Knowledge

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- ▶ **Girls are more verbal**
  - ▶ Fluency not intelligence
- ▶ **Boys are better at spatial relations**
  - ▶ Connection to some math skills
- ▶ **Boys are more active**
  - ▶ Expectations not biology early
  - ▶ Puberty brings activity
- ▶ **Boys are more aggressive**
  - ▶ true cross-culturally
  - ▶ Need to roughhouse

# Do Male and Female Brains Differ?

- ▶ Male brain is larger, but has fewer connections
- ▶ Differential development
- ▶ Amygdala vs. hippocampus
- ▶ Pre-frontal lobes develop more slowly in males

	Left (girls first)	Right (boys first)
Hippocampus (girls first)	Memory of Nouns/details	Memory of pictures/gist
Amygdala (boys first)	Spelling, reading words, verbal intellect, vocabulary	Mathematical calculation & performance

# Verbal Differences between girls and boys

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- ▶ Acquisition
  - ▶ Earlier for girls
- ▶ Fluency
  - ▶ Girls more fluent than boys
- ▶ Intelligence
  - ▶ No difference – at least as measured
- ▶ Spelling and grammar
  - ▶ Boys continue to have problems so need exposure later than girls

# Sensory differences between girls and boys

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- ▶ Hearing
  - ▶ Girls more sensitive to sound than boys
  - ▶ Boys have problems with phonemic awareness
- ▶ Vision
  - ▶ Boys have more acute vision than girls and see objects in motion better
  - ▶ Girls see objects close up, better perceptual speed
- ▶ Touch
  - ▶ For learning, boys are hands-on, girls may be content to observe

# Other cognitive differences

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- ▶ **Spatial – boys better at rotation and spatial-temporal**
  - ▶ May supply boys' advantage in mathematical problem solving
  - ▶ Traditionally little training in early school
- ▶ **Learning Modalities**
  - ▶ Verbal/auditory
  - ▶ Kinesthetic/iconic



# Differences in Learning Issues

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- ▶ **ADHD**
  - ▶ More males due to social bias?
  - ▶ Cause of inattention may be something other than learning problem – bored?
- ▶ **Dyslexia**
  - ▶ More males – but is it a developmental problem?
- ▶ **Dyspraxia/Dysgraphia**
  - ▶ more males – but is it due to social expectations?
- ▶ **Dyscalculia**
  - ▶ Actually a problem with memory
  - ▶ Girls give up too easily because of social beliefs
  - ▶ Boys will avoid math

# Emotional Differences

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## Fight or Flight – adrenalin

- ▶ Increase in heart rate, breathing, blood sugar, blood floods muscles and brain, pupils dilate → movement

## Tend and Befriend – oxytocin

- ▶ Decrease in heart rate, breathing, blood sugar, blood goes to core, pupils constrict → freezing

## The problems of global praise or discipline

- ▶ Without specific references, failure results in boys getting angry and girls becoming anxious
- ▶ What is seen as bad behavior may be impulsive not purposeful



# What skills do girls have that are advantages in learning?

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## ▶ Planning

- ▶ Managing and regulating behavior (deciding what you are going to do before you do it)

## ▶ Attention

- ▶ Resisting distractions
- ▶ Alert to environment

## ▶ Successive processing

- ▶ Accepting, evaluating, and retaining information

## ▶ Self-disciplined

- ▶ Can motivate themselves to complete material they are not interested in



# Strategies to help develop math skills

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- ▶ **Develop 3-D models**
  - ▶ Cuisenaire rods
  - ▶ Clay, sculpture, dioramas
- ▶ **Map skills**
  - ▶ Have students make maps and follow maps
- ▶ **Encourage students to draw figures and to use graphics in answers**
- ▶ **Use colors to differentiate figures**
- ▶ **Clarify language**
  - ▶ How do you say “- 4”
  - ▶ Times and multiply; divide by or divide into

# Strategies for Science

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- ▶ Provide practice in developing problem solving skills – SimCity, Odyssey of the Mind, Lego robots or Robotis
- ▶ Girls more likely to get involved in class exercises in same sex groups especially in science
- ▶ Use interactive notebooks
  - ▶ Communication with teacher
  - ▶ Development of visual skills

# Girls' Effective Strategies

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- ▶ Teach girls to persist on problem solving
- ▶ Encourage girls to get more involved
- ▶ Stress identification and management
- ▶ Cooperation not competition – work in even number groups for girls
- ▶ Help girls develop independence
- ▶ Teach girls to have confidence in their abilities and to recognize inner strengths not outer conflicts

# What characteristics of boys should make school easy?

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- ▶ **Natural inquisitiveness**
  - ▶ Need to know how things work
- ▶ **Emphasis on details/facts**
  - ▶ Boys know lots about subjects they like
  - ▶ Geography bee winners
- ▶ **Competitive nature**
  - ▶ Need to focus on indirect and cooperative and not on direct competition: competition = motivation
- ▶ **Ability to work in groups**
  - ▶ Boys very peer oriented, what one does, his mates will do

# Strategies for Language Deficits (reading)

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- ▶ **Develop language fluency**
  - ▶ Read to them
  - ▶ Get students to read out loud
  - ▶ Work in cooperative groups
- ▶ **Use strengths to compensate for weaknesses**
  - ▶ Graphic novels, magazines, and web sites
  - ▶ Book Bingo, Bookmarks
  - ▶ Books that are exciting, realistic, gory, scary, and plot driven

# Strategies for Language Deficits (writing)

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- ▶ Grammar and vocabulary games
  - ▶ Personal paragraphs, punctuation passages
- ▶ Deconstruction of writing – taking sentences and paragraphs apart
- ▶ Short writing
  - ▶ Headlines, First/last lines
  - ▶ Dice
  - ▶ Poems – cinquain, diamante, limericks

# Specific Strategies for Boys

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- ▶ Teach attention management strategies
- ▶ Assist boys to develop ways to use visual strengths to learn
- ▶ Include some measure of risk
- ▶ Use stress to advantage in class, get boys on their feet
- ▶ Connect behavior to consequences
- ▶ Remember that if a boy is moving he may be paying better attention than if he is sitting still



# Conclusion

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- ▶ There are cognitive differences between boys and girls which are brain based
- ▶ Adapting teaching strategies for those differences improves learning
- ▶ Accommodating for learning differences allows students to make use of their learning strengths to compensate
- ▶ Remember, equality is achieved not when all are the same, but when all are allowed to learn the way that best suits them