

# Beyond Pink and Blue:

What teachers need to know about the emerging science of sex differences

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## Day One

### 1) Some sex differences are fundamental and innate.

- A. **Visual system.** Recent research has demonstrated innate differences in the wiring of the retina and the visual system. Girls and boys literally see the world differently. Teachers who do not understand these differences are likely to reinforce their boys' beliefs that "drawing is for girls." But the importance of these differences extends beyond visual arts. How we see influences how we read and write. The characteristics of "boy writing" – with an emphasis on action – may be traced in part to these differences in the wiring of the visual system.
- B. **Auditory system.** Girls and boys hear differently from birth. Many boys learn better when the teacher speaks in a louder tone of voice. What about girls?
- C. **Sequence of development.** We now know that the various regions of the brain develop in a different sequence in boys compared with girls. If you teach the same subjects in the same sequence to both girls and boys, by the time students are 14 years old you'll have many girls who believe that "geometry is tough" and many boys who believe that "poetry is stupid." The teacher's lack of awareness of sex differences has the unintended consequence of *reinforcing* gender stereotypes. Conversely, teachers who understand these differences can break down gender stereotypes: they can empower more girls to excel in computer science and physics and engineering, and they can inspire more boys to get excited about creative writing, poetry, and foreign languages.
- D. **Autonomic nervous system.**
  - I. **Sympathetic / parasympathetic.** We will review recent research demonstrating that many key autonomic variables are controlled primarily by the sympathetic nervous system in males, and by the parasympathetic nervous system in females – not only in humans but in most laboratory animals. Some boys learn better when they stand; most girls learn best when they are sitting.
  - II. **Temperature.** One application of this finding has to do with ideal ambient temperature. The ideal ambient temperature for boys to learn is 69° F; for girls, it is 75° F (true only for normal-weight children, however).
  - III. **Confrontation.** This point is the most easily misunderstood of the new findings with regard to gender differences. The *right kind* of confrontation can indeed stimulate and excite many boys to learn, boys who otherwise might be labeled ADHD or LD. This does not mean that the classroom should resemble a Marine boot camp. The teacher must always communicate respect and affection for his or her students.

## 2) These differences are educationally relevant.

We will consider applications to the subject areas:

- Best practices for teaching **science** to boys
- Best practices for teaching **science** to girls
  - Focus on nouns (referring back to Baron-Cohen/Connellan)
  - Interdisciplinary approach, emphasizing relevance: example of why Coke and Diet Coke cause brittle bones in teenage girls (but not in teenage boys)
  - The Lisa Randall approach: e.g. the photoelectric effect as the dessert dilemma
- Best practices for teaching **math** to boys
- Best practices for teaching **math** to girls
  - The relevance of the 1989 NCTM guidelines
- Best practices for teaching **language arts and English** to girls
  - Creative writing; diaries – breaking the gender stereotypes
  - What about race and ethnicity? Judy Blume vs. Toni Morrison vs. Julia Alvarez?
  - What’s wrong with “graphic novels”?
- Best practices for teaching **language arts and English** to boys
  - What are some good ways to get boys excited about fiction?
  - What about race and ethnicity? *Native Son* vs. *Captains Courageous*?
  - What’s wrong with “graphic novels”?
  - How can you best teach *Jane Eyre* to boys?
- Best practices for teaching **social studies and history** to girls
  - Begin with “what would it be like to be a girl in . . .”
  - Make a connection
  - Examples from the Southern United States before the Civil War: what would it be like to be a White girl on a wealthy plantation? What would it be like to be a Black girl on a wealthy plantation? What sort of food would the White girl wear, compared with the Black girl? What sort of clothes would the White girl wear, compared with the Black girl? What sort of beds would they sleep in? Introduce the history only after the connection is made.
- Best practices for teaching **social studies and history** to boys
  - Find the hero or the villain, and tell the story from that perspective. Use history as a vehicle to engage boys and as a ‘hook’ to get into social studies.
  - *In media res*
  - Introduce technical elements, and maps: What was the difference between a Confederate rifle and a Union Army rifle? Why did it matter?

## Day Two

### 3) Some girls and boys are atypical.

Some girls don't play with dolls; they'd rather kick a ball or wrestle a hog. Some boys don't enjoy football or soccer; they'd rather sit quietly and read a book. Research by Jerome Kagan, Patricia Cayo Sexton, and others, has demonstrated that these boys share a number of characteristics which distinguish them from 'mainstream' boys:

- These boys may be athletically talented, but if so, they tend to prefer tennis, track, or golf, rather than football or soccer
- These boys are more likely to suffer from allergies, asthma, and eczema
- These boys are more likely to be precocious, particularly with regard to language

What do educators need to do to ensure that all boys – including these atypical boys – fulfill their potential? And what about gender-atypical girls, a.k.a. “tomboys”? How do the principles described on Day One above differ for these girls – if they *are* different?

#### 4) Best practices for classroom management – boys.

Among middle school and high school boys, the boy who is most disruptive may raise his status in the eyes of the other boys. Conversely, the boy who asks the teacher for help may lower his status in the eyes of the other boys. Teachers who understand how boys learn will be rewarded with a dramatic drop in discipline referrals and a renewed focus on learning. Teachers who don't understand these nuts and bolts may waste classroom time playing the game we call “whack-a-mole”: trying to get one boy to behave and stop disrupting the class – while another boy is becoming disruptive.

- A. The team concept.** This strategy, also referred to as the “houses” strategy (referring to the four houses in the Harry Potter series – Gryffindor, Slytherin, Hufflepuff, and Ravenclaw), is particularly useful for boys, even for very young boys. (See the excellent article on this topic in the April 2006 *Educational Leadership*.) We will review how to introduce this concept, how to assign boys to the various teams, and how to address different abilities among the various teams.
- B. Bullying prevention.**
- C. Delinquent behavior.**
- D. Interactive session.** In this part of the workshop, we will consider various real-life situations and ask participants how they would deal with the boy in each case. This session will be facilitated by watching segments from movie depictions of the classroom setting, including *Dead Poets Society* and *To Sir With Love*.

#### 5) Best practices for classroom management – girls.

We'll talk the advantages and disadvantages of various seating arrangements, how to encourage group work without promoting the formation of cliques, and the difference between teams and friends. We will consider specifically:

- E. Preventing the “Meangirls” phenomenon.** This evidence-based strategy, developed initially in Chicago schools, has been effective in preventing girl-on-girl bullying in schools around the United States.
- F. Delinquent behavior.** Girls at girls' schools are less likely to use drugs and alcohol

compared with girls from the same neighborhood who attend *coed* schools. Why is that? How can teachers implement this effect at a coed school?

6) Best practices for testing and assessment.

Of course you will be measuring your students' grades, test scores, attendance, and discipline referrals. How can you enhance students' performance on these traditional parameters? And how do best practices for testing and assessment differ for girls compared with boys?