

## GENDER DIFFERENCES IN LEARNING?

### **1. Do boys and girls learn differently?**

This is a pretty contentious debate. The **YES** argument:

- Some best-selling authors, interviewed [here](#), claim that boys are “hardwired” differently than girls.
  - Dr. Leonard Sax claims that differences in hormone levels make boys more fidgety. He believes there are significant differences in how boys and girls learn. For example, he says providing context helps girls learn, but bores boys. More of his theories [here](#).
  - Michael Gurian argues that physical differences in the brain account for girls having better verbal skills, and boys having better spatial skills.
- An educator in South Carolina thinks boys are more attuned to “motion and direction,” so teachers need to move around the room as they teach boys. More of his theories in this [Reader's Digest article](#).
- [This article](#) presents the views of several DC educators who believe that gender-based learning differences are real. Among the opinions expressed in the article:
  - “Boys tend to lag behind girls in language, attention and fine motor skills, especially in lower grades.
  - Girls are more likely to struggle with spatial learning, including math.”
  - Boys in younger grades need more play-oriented learning and more breaks to play outdoors.
- [Here's](#) the study Roger mentioned about male monkeys preferring trucks.

The other side says **NO**, these are self-fulfilling stereotypes and “weak science.”

- These authors argue that there is no solid evidence that boys’ brains are different than girls’ brains. (["The Difference Myth"](#) and ["Girls' and Boys' brains: How different are they?"](#))
- They cite studies that show no statistical differences in how boys and girls perform on spatial and verbal assessment tests.
- They argue that negative assumptions can affect outcomes. They cite studies such as [this one](#) in which a math test was given to 2 groups of undergrads. The women in one group were told before the test that women usually don’t do as well as men. These women scored significantly lower than the men. The women in the other group, who were not told anything, performed just as well as the men.
- “The more we parents hear about hard-wiring and biological programming, the less we bother tempering our pink or blue fantasies, and start attributing every skill or defect to innate sex differences. Your son’s a late talker? Don’t worry, he’s a boy. Your daughter is struggling with math? Its okay, she’s very artistic.”  
Neuroscientist and author Lise Eliot.

### **2. Should public schools offer single-sex learning options?**

In 2012, about 500 U.S. public schools offered single-sex classroom options in co-ed schools. See this [recent Washington Post article](#). For example, one school had 2nd graders in a co-ed homeroom, lunch and recess, but separated them for math, science, reading, and social studies.

- St. Stephens and St. Agnes School in DC is coed, except for middle school math and science. An [algebra teacher says](#), “Girls aren’t overwhelmed by the boys’ competitiveness in class, and boys are pushed to collaborate rather than compete.”
- “Girls will usually say that they’re able to share their ideas more in an all-girls classroom. Boys will tend to say that they’re not distracted by the girls,” [said David Chadwell](#), South Carolina’s coordinator for single-gender initiatives. Opponents of single-sex classrooms argue that it doesn’t work, can be discriminatory, and doesn’t prepare students for the real world.
- They argue that both boys and girls succeed when they get a good education (smaller class sizes, equitable teachers, etc.). [NEA Review](#).
- The ACLU challenged these single-sex classes under Title IX and lost, but this did lead some schools to drop their single-sex classes.
- A recent report in Psychological Bulletin reviewed 184 studies and concluded that there was no evidence that single sex classes improve girls’ math and science skills or boys’ verbal skills.

### 3. Implications for STEAM

Let’s address **STEM** (Science, Technology, Engineering, and Mathematics) first.

#### The statistics

- The US Dept of Education has some interesting [statistics](#) on gender equity in education. This “data snapshot” shows, among other things, that the gap in participation in math and science courses is narrowing, but boys are still taking and passing AP tests at a higher rate than girls.
- Although they represent a mere 24% of the STEM workforce, women earn on average 33% more when they work in these fields.<sup>1</sup>

#### Some initiatives

- NASA is working with the Girl Scouts of America to motivate and encourage girls to pursue careers in STEM disciplines. In 2012, NASA launched a mentoring program that connects women engineers/scientists to girls nationwide.
- The NIH has a “re-entry” program for scientists who have taken time away from research to attend to family responsibilities. (90% of participants are women.)
- Merck and Girls, Inc. are partnering to support hands-on STEM training for girls in certain colleges. More info [here](#).
- Here’s the Huffington Post’s [Girls in STEM page](#). They also have a Girls in STEM Mentorship Program.
- [This article](#) talks about engaging girls in STEM by connecting girls with female role models and providing hands-on experiences relevant to potential careers.

“**STEAM**” is a recent push to incorporate “Arts” into STEM. STEAM means learning as an interwoven experience (as opposed to separate math time, separate science time, etc.), and about reemphasizing the arts in today’s technology driven world.

- Exs: A photography class where you build your own camera. [WSJ article](#). Building arcade games out of cardboard boxes and tape. [Video](#).
- Earlier this year, members of Congress formed a caucus to draft and pass legislation to incorporate arts into STEM.

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<sup>1</sup> Dept. of Commerce’s Women in STEM: A Gender Gap to Innovation (Aug 2011).

- Some programs that follow the STEAM philosophy:  
[Cool Girls Science and Art Club](#) for grades 1-5.  
[Blue School](#) in Manhattan (founded by Blue Man Group)  
The Rhode Island School of Design provides “STEM to STEAM news” [here](#).

### **Roger’s Discussion Questions**

1. In our desire to accommodate girls better in the public school system, have we swung the pendulum too far, and now are harming boys? If so, how? What do we do about it? What can we do at West?

- See [Why Men Are Falling Behind in Higher Ed](#)
- Argument that boys are not really falling behind: [The Evidence Suggests Otherwise: The Truth About Boys and Girls](#)

2. Is it even possible to make STEM accessible to a plurality or maybe even a majority of girls? What are the trade-offs? What can we do at West?