

Boys vs. Girls: Are Boys More Visual-Spatial Than Girls? Why Gender Matters in Every Classroom

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Upside-Down Brilliance: The Visual-Spatial Learner. DeLeon: Denver, CO.

During the past four years, I have had the privilege to present about visual-spatial learners to audiences in a number of different countries, at regular schools and schools for gifted, to parents and educators of learners of all ages. And nearly every time I present, about 15 minutes into my discussion (right after some pretty funny cartoons of characteristics of visual-spatial learners), I am asked, “Are boys more visual-spatial than girls?” or “Are more boys visual-spatial than girls?” I tend not to answer right away, waiting instead until we’ve discussed a bit more about some identifying traits of children who favor this learning style. Eventually, I ask each participant to write down the name of a student they are fairly certain fits the profile of this type of learner. With a show of hands I ask “Who among you wrote down the name of a boy?” and, “Who among you wrote down the name of a girl?” Almost without fail, the boys have been pegged by 80% or more of the participants. Why is that? Why do teachers and parents seek out my advice on behalf of their male students and children significantly more often than for female students and children?

When I first began studying this learning style in earnest, I was concerned that I was looking through a very biased lens. Both of my children are visual-spatial and male, my husband

is visual-spatial and male, 80% or more of my students had been visual-spatial and male, and well over 80% of the families that had hired me to consult with or advocate on their behalf had visual-spatial male children. Even the cartoonist who created all the renderings of my life with my children and students was visual-spatial and male—he inadvertently drew every visual-spatial child as a male and every auditory-sequential (left hemispheric) child as female! At one point, I had to ask that a rendering of my son manipulating a computer while still in diapers be drawn as a young girl because we had so few cartoons depicting female visual-spatial learners! (They do exist, in case you're still wondering.) And so, I began a quest of my own to read as much as I could find about the differences between the sexes when it comes to spatial abilities, particularly as related to successful learning.

Historically, boys and men have long excelled in spatial ability tests over girls and women. Some have proposed a hunter-gatherer theory, predicting that men excel in spatial abilities such as navigation, map reading and mental rotations because survival depended on the ability to hunt, hurl a spear through space at a moving target, and find one's way home. Women, on the other hand, required better spatial location memory in their work as gatherers (Silverman & Eals, 1992). Other theories have postulated that spatial abilities are further enhanced by experience and that, once endowed with ability in a particular area, the individual continues to select activities that serve to further increase ability in that domain. We see this in the selection of many extracurricular activities where those with an innate ability to draw, for example, often choose visual arts classes. This has certainly been the case with children I've worked with who enjoyed building with LEGO sets – they follow that passion and can complete a new set much faster than a child being introduced to LEGO for the first time!

Are boys more visual-spatial than girls? Well, it could be argued that they appear to be more visual-spatial and at a younger age than girls:

...some of the regions involved in mechanical reasoning, visual targeting and spatial reasoning appeared to mature four to eight years earlier in boys. The parts that handle verbal fluency, handwriting and recognizing familiar faces matured several years earlier in girls. (From Time magazine, March 7, 2005, "*Who Says a Woman Can't Be Einstein?*")

We have ample research to demonstrate that young boys don't appear as "school ready" (read "left hemispheric" and not visual-spatial) as young as girls:

...Virginia Tech researchers found that boys are *years* behind girls in the development of the area of the brain responsible for fine motor skills. (Sax)

For a 1,500 Hz tone...the average girl baby had an acoustic brain response about 80 percent greater than the response of the average boy baby...that range of sound is critical for understanding speech, particularly from a female voice [which most elementary

school teachers are]. The female-male difference in hearing only gets bigger as kids get older. (Sax)

There are stronger connecting pathways within the female cerebellum brain than the male providing superior language and fine-motor skills for girls than boys. A more active frontal lobe, which facilitates speech, thought, and emotion allows for improved verbal communication in girls. (Gurian)

...girls are prewired to be interested in faces while boys are prewired to be more interested in moving objects. (Sax)

The problem may lie, however, in what we regard as “school ready” skills. Seldom do we assess or monitor the development of spatial abilities, often an area of strength for many boys. Geography, an area most visual-spatial learners excel in, is not typically introduced until the later grades. Nor is higher level mathematics. Instead, “math” is about the rote memorization of seemingly meaningless facts and figures which manages to successfully turn off our nation’s natural mathematicians.

Certainly we see plenty of visual-spatial women, though. Many girls have grown up to pursue careers as mathematicians, pilots, artists, musicians, designers and other “right-hemispheric” domains. So why the disparity in what classroom teachers see, particularly during the elementary school age years? My personal observations is that girls, while they may have strong visual-spatial abilities and may prefer the right hemisphere of the brain (as demonstrated by their response to instructional strategies that speak to that hemisphere), are predisposed to please their teacher and are not inclined to act out if bored, unchallenged, or unengaged. Most girls would never dream of complaining that they did not understand, or “see,” the material being covered. Boys, on the other hand, tend not to have any qualms about verbalizing their displeasure with a situation, acting out on a neighbor if they are bored, and otherwise becoming a behavior issue in the classroom. So boys are brought to me (and scores of other education specialists, psychologists, and counselors) and girls, typically, are not.

As Sax wrote (2005) in *Why Gender Matters*,

The bottom line is that the brain is just organized *differently* in females and males. The tired argument about which sex is more intelligent or which sex has the “better” brain is about as meaningful as arguing about which utensil is “better,” a knife or a spoon. The only correct answer to such a question is: “Better for what?”

Something to consider: Did you know that boys represent 90% of the discipline problems, 80% of the dropouts and two-thirds of the identified learning disabled in America’s classrooms (Gurian, 2001)? No wonder teachers and parents of boys have been far outnumbered by the teachers and parents of girls who request my services. I have long been plagued with the question, though, is this a “boy” problem or a teaching problem? Take no offense teachers, as I a

am a classroom teacher as well, but my work with educators in classrooms all over the world has convinced me it's the latter. Though well intentioned, too many of the teachers I have encountered continue to deliver instruction in an old and tired format of word-based lecture and textbooks. Their classrooms might be havens for word thinkers who can easily remember facts and figures and recite them on demand, but there is a significant population they have let fall through the cracks: gifted children, students with learning disabilities, English Language Learners, minority children, students who excel in the arts, and a whole host of other visual-spatial learners for whom the written and spoken word is the least effective method from which to receive new information.

Ways we can help visual-spatial boys do better in school (Golon, 2006):

- Allow for ample hands-on learning opportunities
- Maintain a sufficient level of challenge – boredom comes more quickly to boys
- Give them plenty of work space
- Allow movement which helps stimulate and provides oxygen to the brain
- Use symbolism, including diagrams, charts, graphs
- Incorporate more images
- Use computers and other media as often as possible

Because I strongly believe in the value of spatial abilities and their application to successful careers in the 21st century, I would encourage girls to participate and become more proficient in activities of spatial awareness including reading maps, communicating directions, playing and building with construction toys (K'Nex, blocks and LEGOs), manipulating puzzles and mazes, etc.

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