

## THE WINDSOR STAR

### The math problem; Eliminating the gender gap

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The relationship between gender and mathematics in North American culture is a complicated thing.

"Men are from Mars, women are from Venus"-style stereotypes are often unquestioned, confessing to being bad at math is socially acceptable, and unmediated math anxiety is common, particularly among women.

With few exceptions, people who are good at math are portrayed in popular media as nerdy, hypercompetitive, socially inept males with pocket protectors.

My own daughters, ignoring the indisputable evidence of their parentage, point out to me that math just isn't very attractive.

But, it seems that with the popularity of the TV show *Numb3rs*, and the recent success of the bestselling book *Math Doesn't Suck* by TV star and mathematician Danica McKellar (Winnie from *The Wonder Years*), math does seem to be losing some of its stodgy image -- perhaps not soon enough to sway my daughters and their friends, but maybe for a younger generation.

Like many of their peers, my daughters are capable young women who do well in math and exhibit the kind of curiosity and intellectual drive that would make them successful mathematicians.

But for some reason, they just aren't interested in pursuing it as a career.

Although we have come a long way since the days of gender-tracking students' educational options, in countries like Canada and the U.S., fewer women than expected end up pursuing advanced degrees in fields like math, engineering and computer science.

While the historic gender performance gap in mathematics is now negligible, women remain under-represented in the field.

The study *Culture, Gender, and Math* published in the journal *Science* last year, underscores this fact. Using data from 40 Organization for Economic Co-operation and Development countries, it shows that in societies with high levels of gender equality, "girls perform as well as boys in mathematics and much better than them in reading."

But, in another large-scale study of 44 industrialized or industrializing countries, researcher Karen Bradley observed that, "gender gaps in attitudes toward math and math careers was greater in advanced industrial societies, despite the smaller math achievement gap."

This attitude gap is what mystifies me.

With competitive quantitative skills and superior reading abilities, girls, in many ways, are in a better position to succeed than boys.

Categorically, boys tend to perform slightly better than girls in geometric or spatial testing, but with practice there is nothing girls can't learn and nothing at which they can't excel.

Yet instead of confidence, many young women seem to internalize self-doubt, and distance themselves from pursuing the quantitative knowledge that will open up dozens of highly rewarding and interesting career paths.

Be it from parental attitudes, teacher cues, the media or their peers, oftentimes girls don't think they're supposed to be good at math, or, if they are, that it will make them less feminine.

Some girls are still getting the message that it's OK to be smart, but just not too "math smart."

What they believe about themselves is critical to their ability to succeed in math.

While research into math and gender issues will continue to expand, we know enough right now to encourage our girls and our boys

to resist stereotyping themselves or others, and to take interest in the many exciting places that mathematics can take them.

**Arvind Gupta** is a mathematician and scientific director of **MITACS**, a national research network focused on connecting university-based math researchers with companies and other organizations to solve real-world challenges. For more information on **MITACS**, visit [www.mitacs.ca](http://www.mitacs.ca).

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## MATH TIPS FOR PARENTS

### WITH YOUNG CHILDREN

Give your sons and daughters early math and science experiences. Visit a local science museum or look for math and science camps.

Make a conscious effort to avoid gender stereotyping when you buy toys for your children. Don't forget that girls and boys can both enjoy spatial games and building toys like blocks, K'Nex, and Lego (and if it has to be pink, the Lego website has a section of recommended products for girls). Fun board games such as Labyrinth, Rush Hour, and Tipover encourage spatial abilities.

Find out what your child is doing in math and science at school or in the child care setting. Does your child come home excited about an interesting activity or experiment he or she did that day? Talk about it.

### MIDDLE, HIGH SCHOOL

As children plan for high school, encourage both boys and girls to take math and science.

Insist that your daughter read up on the work of female mathematicians, as well as other resources on women in math and science. Google the Association for Women in Mathematics and read some great biographies.

And don't forget the great new books *Math Doesn't Suck* and *Kiss My Math* (for middle school math and pre-algebra respectively) by Danica McKellar formerly of the hit TV show *The Wonder Years*. The books have companion websites, [www.mathdoesntsuck.com](http://www.mathdoesntsuck.com) and [www.kissmymath.com](http://www.kissmymath.com).

**Arvind Gupta**, Vancouver Sun

#### Illustration:

- Photo: Glenn Baglo, Canwest News Service / **Arvind Gupta**, a scientific director at **MITACS**, wants to see more women pursuing math in school.

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