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ABSTRACT

This pamphlet examines the misconception that one's gender is a significant predictor of abilities and interests. Knowing whether an individual is female or male tells a great deal biologically but very little otherwise. Gender is not a good predictor of academic skills, interests or emotional characteristics. Sections of the pamphlet include: (1) "How Much Does Gender Count?"; (2) "How Big Are the Differences?"; (3) "Myths and Realities"; (4) "Why Do Myths Persist?"; and (5) "Is It Real or Is It a Stereotype?". An 8-item reference and sources section concludes the pamphlet. (EH)

Girls Are . . . Boys Are . . .

Myths, Stereotypes, and Gender Differences

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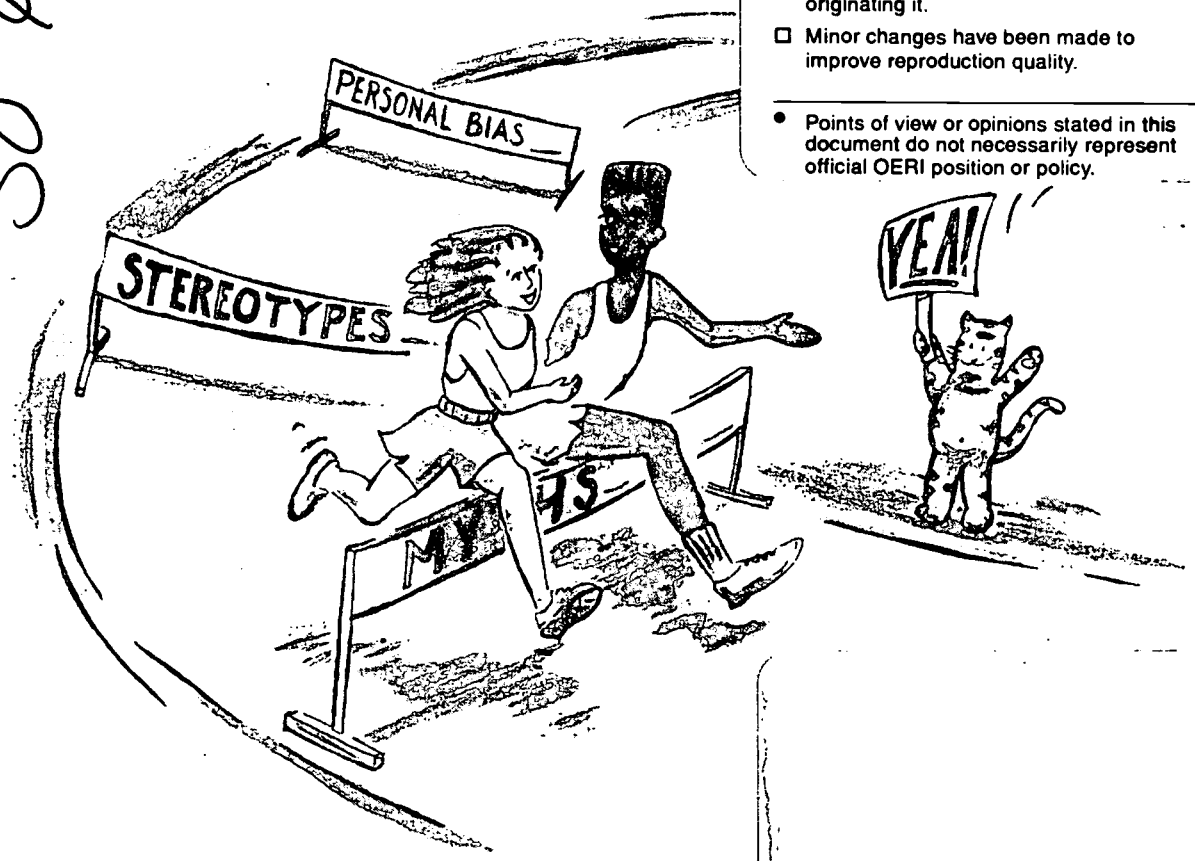
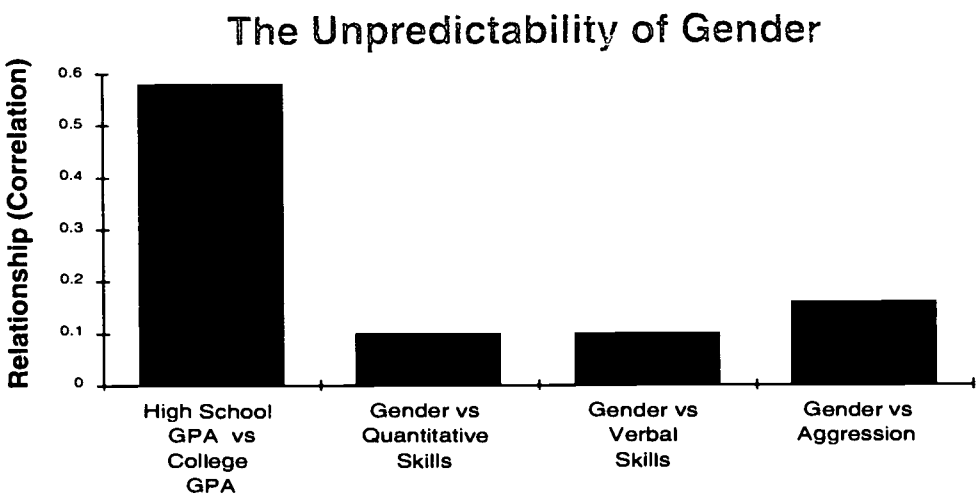


How Much Does Gender Count?

Most of us—educators or not—tend to assume that females and males are different, that they are indeed "opposite sexes." We see someone's gender as an important predictor of their abilities and interests and assume that if we know someone is a girl or a boy, we know a lot about them.

That assumption is wrong! Knowing if someone is female or male may tell us a lot about them biologically but it tells us very little about them in other ways. Knowing someone is a woman does not tell us if her athletic ability is closer to Martina Navratilova or a couch potato. Knowing someone is a man tells us nothing about whether his math skills reflect those of an Einstein or a math phobic.

Gender is not a good predictor of academic skills, interests, or even emotional characteristics. In fact, as the graph below indicates, gender is a bad predictor.



Predictive relationships (also called correlations) range from 0 (no relationship) to 1 (a perfect relationship). The relationship between birth and death is a "perfect 1," which means once you are born, it can be predicted with total certainty that you will die. The closer the relationship is to 1, the better the prediction.

The predictive relationship between high school GPA (grade point average) and college GPA is .6. This is a fairly high relationship, which means that if your high school GPA is high, the odds are your college GPA will also be high.

The predictive relationship between gender and quantitative skills is about .1, as is the relationship between gender and verbal skills. This is a very low relationship, which means that if all we know about you is that you are a woman, then we don't know if your quantitative (or verbal) skills are high, low, or in between.

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How Big Are the Differences?

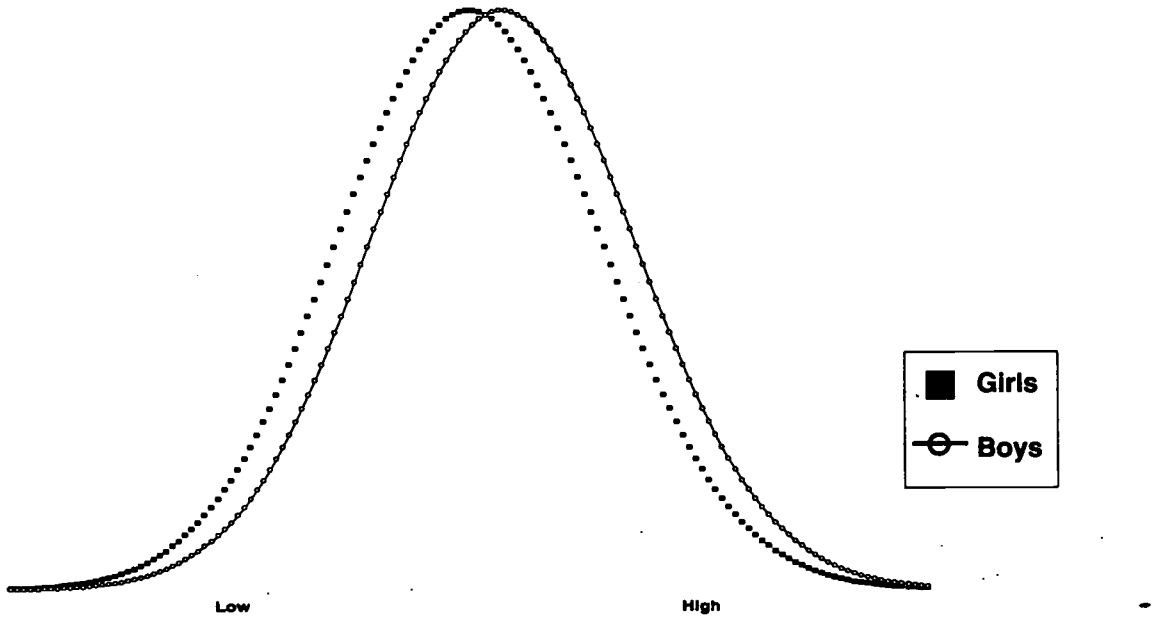
There is a lot of talk about "sex differences" and a lot of research and writing as well. The reality is that girls as a group and boys as a group are more alike than they are different.

Differences between individual girls or between individual boys are much greater than those between the "average" girl and the "average" boy. Yet we tend to generalize and apply the information we know about the "average" girl or boy to individuals. Averages can be very deceiving. Consider the following:

The average temperature of Oklahoma City is 60 degrees, but that tells us little about what the temperature is going to be on any specific day—particularly since in Oklahoma City the temperature can range from -17°F to 113°F.

Similarly, knowing that in 1992 the National Assessment of Educational Progress (NAEP) math achievement score of the average seventeen-year-old girl was 297 out of 500 and the score for the average seventeen-year-old boy was 301 tells us little about the math achievement of individual girls and boys.

When hundreds of studies of math-related skills are examined and summarized, as the following graph shows, there is a large overlap between the scores of girls as a group and the scores of boys as a group.



As the graph shows, some girls are very good at math and so are some boys. Some boys are bad at math and so are some girls. The overlap is much larger than the difference.

Overall, gender differences are similar to other demographic differences. For example, the 1992 NAEP 12th-grade science tests found, on a 500-point scale, differences of

- 19 points by type of school (private versus public)
- 11 points by gender (male versus female)
- 9 points by geographic location (Northeast versus Southeast)

Myths and Realities

Myth: *"Real" women don't do math.*

Related Myths

You're too pretty to be a math major.

Women are qualitative; men are quantitative.

Results

High school girls who think of math as a "male thing" are less likely to go on in math and are less likely to do well in math.

Girls are much less apt than equally talented boys to go into math-related careers, including engineering and the physical sciences.

Solutions: *We all should*

- provide girls and boys with lots of examples of women and girls who are successful in math and science (and who are also cool)
- challenge others, both students and adults, when they make stereotypical comments about girls and math
- stop saying things like "Women aren't good in math"

Myth: *There is a biological basis for sex differences in math.*

Related Myths

There is a sex-linked math gene.

Hormones cause everything.

Results

Parents have lower expectations for girls in math and science.

Some educators use the "math gene" as an excuse for their own gender-biased classroom behaviors.

Biology is used to justify the smaller number of girls on math or science teams and the smaller number receiving math or science awards.

Solutions: *We all should*

- read "scientific" studies with a critical eye, looking for what are facts and what are opinions
- be aware that while there is no evidence of a "math gene," there is a lot of evidence that practice and encouragement improves math and science skills for girls (and for boys)
- provide students with needed practice and encouragement

Myth: *Girls learn better from female teachers.*

Related Myths

Role models must always be of the same sex as the student.

Results

Some female teachers feel that being a woman is enough to encourage girls, and it isn't necessary to do anything else.

Some male teachers feel that it isn't possible to reach girls so it isn't necessary to try.

Some adults and students feel that girls avoid classes taught by men.

Solutions: *Explain to others the following points:*

- It makes little difference to most students whether they are taught by a man or a woman. It is the quality of the teaching, not the gender of the teacher, that matters.
- While teachers treat male and female students differently, this is true for both female and male teachers. The gender of the teacher has little or no effect on how they treat girls and boys.
- While women and men can teach girls well (or poorly), if students never see women teaching math or science, the myths about who does and doesn't do math and science are reinforced.

Myth: *It is not necessary to look at the interaction of gender and race when dealing with girls in math and science.*

Related Myths

If something applies to white girls, it also applies to African American, American Indian, Hispanic, and Asian girls.

If something applies to African American boys, it also applies to African American girls.

Results

There is little research about girls of color and about the best ways to encourage them in math and science.

There is potential for girls of color to be ignored and to feel invisible.

Solutions: *We all should*

- demand that information be broken down by gender and race
- look for both similarities and differences when looking at results
- look at what is happening in terms of gender and race when analyzing our own classes
- sometimes just look at statistics for girls of color

Why Do Myths Persist?

Myths based on gender persist, despite the evidence to the contrary. So where did they come from and why do they continue? The following are just some of the reasons.

History

It is a common belief that because men are the principal producers in "modern" society that this has always been the case. In fact, in earlier times when women were the main food-gatherers and producers, there were matriarchal societies where women had high status, were preeminent as cultivators, and were glorified as goddesses. As late as the second century B.C., the major deities in European culture were women.

There are a variety of theories as to why this changed. Some like Reed (1975) felt that with the evolution of private property women lost their place in productive, social, and cultural life and their worth sank along with their former status. Others like DeBeauvoir (1964) felt that change occurred when it was established that men as well as women were involved in the reproductive process. Napoleon felt,

> *"Woman is our property; we are not hers because she produces children for us—we do not yield any to her. She is therefore our possession as the fruit tree is that of the gardener."*

Researchers also used women's reproductive capacity to conclude women's intellectual inferiority and then turned around and concluded that using the intellect would destroy reproductive capacity. For example:

> *Female students were concluded to be pale, in delicate health and "prey to monstrous deviations from menstrual regularity."*
>
> —Clarke, 1873, last printing 1963!

> *The woman who uses her brain loses her "mammary function first and had little hope to be other than a moral and medical freak."*
>
> —Hall, 1905

> *Women are "closer to children and savages than to an adult civilized man."*
>
> —Le Bon, 1879, reported in Gould, 1981

At times in history it has been said that women are better than men. At other times it has been said that men are better than women. Both are wrong.

Research's Emphasis on Differences

Social science research is based on a search for differences. Since we don't look for similarities, we don't find them and thus perpetuate an overemphasis on the differences between girls and boys.

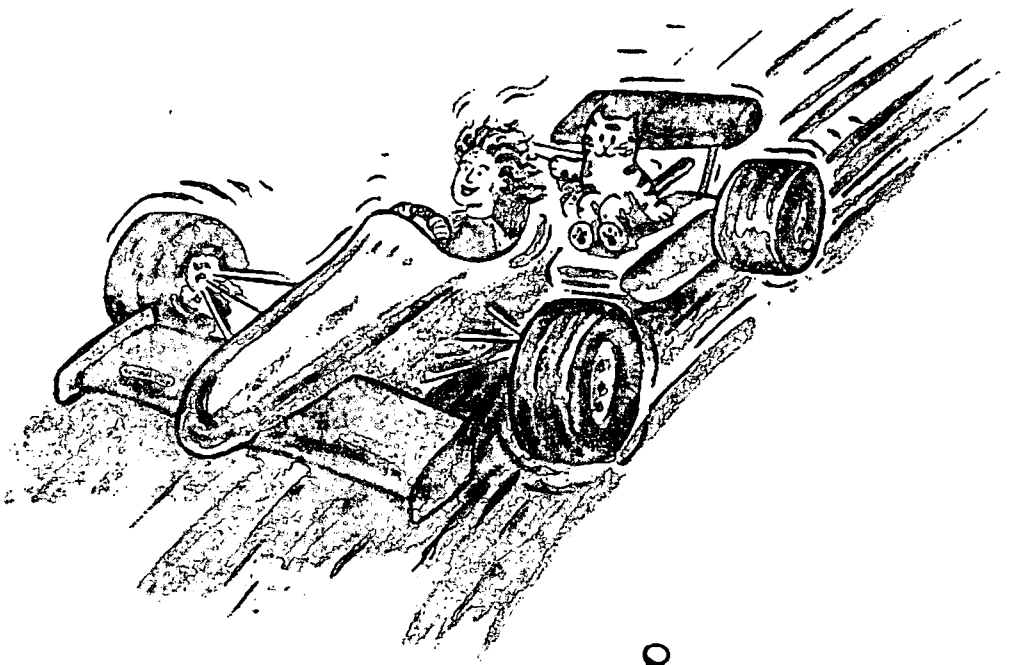
Differences are at the basis of research design and theory. Differences can be proved while similarities cannot. The concept of "statistically significant differences" is widely accepted and used—there is no general concept of statistically significant similarities. Thus in a research study, if you find differences, you have something. Your research is more likely to be seen as meaningful, and it is more likely to be published, than it would be if you didn't find differences. Finding similarities isn't currently an option, regardless of what your data say.

When research focuses on differences and when differences are all that is reported, difference-based stereotypes are reinforced and continued.

The Allure of Oversimplification

Complexity is hard, simplicity is easy. To deal with complexity we often revert to simplicity; we tend to categorize and make judgments based on that categorization.

Stereotypes are easy to fall into. When we see a woman do something really stupid in a car, many of us say "woman driver." When we see Lyn St. James win Rookie of the Year at the Indianapolis 500, however, very few of us say, "Wow, is that woman driver stereotype wrong." Thus are stereotypes reinforced, but rarely countered.



Is It Real or Is It a Stereotype?

It's a stereotype if it ascribes characteristics to an individual based solely on group membership. For example, it is a stereotype to assume a tall, thin, young African American male is a basketball player or that an Asian student is good in math.

It's probably a stereotype if it describes how girls and boys are "supposed" to be. For example, the statement "Susie will be better than Ed at baby-sitting because she is a girl" is a stereotype.

It's probably a stereotype if a book, toy, or tool is described or pictured as "for boys" or "for girls." For example, a chemistry set that only pictures boys is enforcing stereotypes; a book about growing up that is listed as "for boys" is not necessarily stereotypical although it may have stereotypes in it.

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Other brochures in this series include
"Teacher Strategies That Work for Girls and Boys"
"Whose Responsibility Is It? The Role of Administrators and Counselors"
"Why Me? Why My Classroom? Equity in Coed Math and Science Classes"

Illustrations by Judy Butler

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