

# Myth or Science?

## “Men Are Better at Science and Math Than Are Women”

### CLASS EXERCISES

This statement is partially false but partially true. The answer is not entirely straightforward because being “good at science” taps into several types of abilities. The consistent difference between the numbers of men and women obtaining graduate degrees in some math, science, and engineering fields cannot be denied. The National Science Foundation has focused much attention on this issue, noting that women make up only about a quarter of physical scientists and engineers but nearly half the U.S. workforce. A number of possible explanations have been offered. Many focus on sociological factors, like the lack of female faculty and other role models in these fields, and a tendency for teachers to have higher expectations for boys in math and science areas. The possibility that underlying gender differences in ability contribute to gender differences in scientific careers is a major social and political flash point. When Larry Summers (president of Harvard University before becoming one of President Barack Obama’s senior advisors) proposed that men are genetically more likely to have exceptional abilities in math and science, he received intense criticism that contributed to his decision to resign.

Did Summers have a point? As we’ve noted, men and women generally do equally well on tests of general mental ability. However, men’s scores on standardized math ability tests show more variability than women’s—men are more likely to be exceptionally low or exceptionally high in math abilities. While there is not much difference between men and women in general mental ability, that doesn’t mean men and women do equally well in all aspects—men tend to score significantly higher on mathematical ability whereas women score higher on verbal ability. These differences appear early—even in kindergarten-age children. Boys score higher on mathematics and science tests, whereas girls score significantly higher in tests of reading and writing ability. Girls do as well as or better than boys in elementary school when math courses require computational knowledge and algebra, but males show higher scores when visual-spatial abilities are important, as in geometry, physics, and calculus.

Bear in mind that scientific careers do require a substantial amount of writing, one of the areas where women consistently perform better than men. A second point is the fairly dramatic change in the upper reaches of ability test scores. In the 1970s in the SAT math test, 13 boys scored over 700 for every girl who did. By 2005 the ratio was 2.8 boys for every girl. Third, specialized education programs to improve visual-spatial abilities can reduce the gap in test scores. Finally, women who are high achievers in math and science subjects are more likely to major in scientific disciplines such as biology and medicine than high-achieving men, so just because women are not represented in physics and engineering does not mean they are consistently opting out of scientific careers.

### Teaching Notes

1. Ask students to discuss in class the factors introduced in the text. What does each student believe in agreement or disagreement with points made about the differences?
2. Have students relate their own experiences with math and science education to determine if any of them can remember seeing differences in gender performance.

## An Ethical Choice

### “Are You More Biased Than You Think?”

Late one Wednesday afternoon, a 34-year-old white woman sat down in her Washington, D.C., office to take a test. She prided herself on being a civil rights advocate, and her office décor gave ample testament to her liberal beliefs.

The woman accessed a test on a Web site run by a research team at Harvard. The test was relatively simple: it asked her to distinguish between a series of black and white faces. When she saw a black face, she was to press a key on the left, and when she saw a white face, she was to press a key on the right. Next, she was asked to distinguish between a series of positive and negative words. Words such as wonderful required pressing the “i” key, words such as terrible required pressing the “e” key. The test remained simple when two categories were combined: The person pressed “e” if she saw either a white face or a positive word, and she pressed “i” if she saw either a black face or a negative word.

Then the groupings were reversed. The test now required the woman to group black faces with positive words and white faces with negative words. Her index fingers hovered over her keyboard. She leaned forward intently. She made no mistakes, but it took her longer to correctly sort the words and images. Her result appeared on the screen, and the activist became very silent. The test found she had a bias for Whites over Blacks.

“It surprises me I have any preferences at all,” she said. “By the work I do, by my education, my background, I’m progressive, and I think I have no bias. Being a minority myself, I don’t feel I should or would have biases.”

As it turns out, evidence is starting to accumulate—more than 60 studies so far—showing most people have these sorts of implicit biases. They’re implicit because we don’t consciously realize they’re there. But they are. We may have implicit biases against minorities or women, or people of a certain religion or sexual orientation. Some people do not have an implicit bias in one area (say, toward race) but do in another area (say, toward Republicans).

So how can organizations deal with these latent biases? The very fact that they are unconscious is part of the reason they may be hard to confront or change. “Mind bugs operate without us being conscious of them,” says one of the Harvard researchers. “They are not special things that happen in our heart because we are evil.” Using objective criteria for evaluating performance appears to help minimize the influence of these biases, as we will see in our discussion of diversity management strategies. It also is likely that making yourself aware of your potential unconscious biases will make it easier for you to take conscious steps to offset these biases.

Sources: Based on L. S. Son Hing, G. A. Chung-Yan, L. K. Hamilton, and M. P. Zanna, “A Two-Dimensional Model that Employs Explicit and Implicit Attitudes to Characterize Prejudice,” *Journal of Personality and Social Psychology* 94, no. 6 (2008), pp. 971–987; A. S. Baron and M. R. Banaji, “The Development of Implicit Attitudes: Evidence of Race Evaluations from Ages 6 and 10 and Adulthood,” *Psychological Science*, January 2006, pp. 53–58; and S. Vedantam, “See No Bias,” *Washington Post*, January 23, 2005, p. W12.

**Teaching Notes**

1. Have your students sign a statement that they understand that they are going to participate in a survey about people's biases, that they have chosen to participate voluntarily, and that they have the right to opt out of the survey without penalty.
2. Have your students go to <https://implicit.harvard.edu/implicit/demo>.
3. Have students enter the demo site.\* Follow instructions to reach the index of available surveys. Ask each participating student to select two of the fourteen surveys to take.
4. After completing the surveys, ask students to discuss what they found. Each survey will have multiple participants in the class depending on how large the class is. Or, you can specifically ask students to do specific surveys to ensure most of them are covered.

\* Permission granted for student access to this site by Project Implicit, Nov. 3 2009.

# International OB

## The Benefits of Cultural Intelligence

Have you ever noticed that some individuals seem to have a knack for relating well to people from different cultures? Some researchers have labeled this skill cultural intelligence, an outsider's natural ability to correctly interpret an individual's unfamiliar gestures and behaviors. Cultural intelligence is valuable when conducting business with people from different cultures, because when misunderstandings occur, cooperation and productivity may suffer.

Consider this: A U.S. manager was meeting with his fellow design team engineers, two of whom were German. As ideas floated around the table, the Germans quickly rejected them. The American thought the feedback was harsh and concluded his German colleagues were rude. However, they were merely critiquing the ideas, not the individual—a distinction the U.S. manager was unable to make, perhaps due to a lack of cultural intelligence. As a result, he became wary of contributing potentially good ideas. Had he been more culturally intelligent, the U.S. executive likely would have recognized the true motives behind his colleagues' remarks and thus might have been able to use them to improve his ideas.

It is unclear whether cultural intelligence is separate from other forms of intelligence, such as emotional intelligence, and even whether it is different from general mental ability. Researchers propose that people who are both able and willing to simultaneously recognize their own culture and the culture of others will be higher in cultural intelligence. Being able to recognize, adjust, and correct your typical way of thinking and recognize alternative cultural points of view does require cognitive resources, so some aspect of general mental ability likely affects cultural intelligence. Whether it is distinct from general mental ability or not, the ability to interact well with individuals from different cultures is a key asset in today's global business environment.

Sources: Based on C. Earley and E. Mosakowski, "Cultural Intelligence," *Harvard Business Review*, October 2004, pp. 139–146; S. Ang, L. Van Dyne, C. Koh, K. Y. Ng, K. J. Templar, and C. Tay, "Cultural Intelligence: Its Measurement and Effects on Cultural Judgment and Decision Making, Cultural Adaptation and Task Performance," *Management and Organization Review* 3, no. 3 (2007), pp. 335–371; and D. C. Thomas, E. Elron, G. Stahl, B. Z. Ekelund, E. C. Ravlin, J. Cerdin, et al., "Cultural Intelligence: Domain and Assessment,"

*International Journal of Cross-Cultural Management*

### Teaching Notes

1. Assign students to seek Internet or library resources on Wilbur Schramm, who published an interactive communication model in 1954. Specifically, seek what Schramm and others say about "Frames of Reference" and their effects on interpersonal relationships.
2. Have students discuss the implications of frames of reference in the International OB exhibit. Have students discuss what effect the frames of reference have on miscommunication among people, such as their parents or classmates.

Wilbur Schramm, "How Communication Works," in *The Process and Effects of Communication*, ed. Wilbur Schramm (Urbana: University of Illinois Press, 1954), pp. 3-26

## Point/Counterpoint

### The Time Has Come To Move Past Race And Ethnicity

There can be no disputing the tragic divisions that have arisen as a result of racial and ethnic discrimination in the world. Within the U.S. context, we can look to issues like slavery, Jim Crow Laws, and continuing evidence of discrimination in employment. The problem, in all these cases, is people treating one another as members of a group rather than as individuals. The time has come for us to move past identifying ourselves with race and ethnic background so we can truly achieve a society in which each person is judged by his or her own individual characteristics. A number of factors suggest racial and ethnic categories should become less relevant in today's United States:

**Ingroup bias.** Hundreds of social psychology studies show people tend to develop negative stereotypes about people from other groups. It is practically inevitable that once someone starts to see someone else as being from a different category, there will be tension and prejudice.

**Questions about race in biology and upbringing.** Geneticists have shown many different genetic strains make up human beings, such that the old categories of Asian, African, and European ancestry are scientifically dubious. There is also more genetic variation within groups than between groups. Many populations do not fit into the standard racial categories at all. And a growing number of children are being raised in multicultural households, presenting a real challenge to those who wish to pigeonhole people into a small number of distinct groups.

**Focus on deeper characteristics.** Some have argued that the increased prominence of highly successful members of ethnic and racial minority groups means income, rather than race or gender, is the real limiting factor in today's economy. Programs to enhance diversity should be targeted at those with fewer opportunities, whether they are African American, Hispanic, White, Asian, or any other race or ethnicity.

The fact is, racial and ethnic divisions represent a very hurtful part of human history, and we have reached a point where we can move beyond these broad categories and see ourselves primarily as part of the human race.

It may be tempting to try to sweep racial and ethnic differences under the rug as if they no longer existed, but people do differ based on group memberships. When we pretend we are all the same, we are bypassing many of the unique cultural differences that make us interesting. Group memberships can serve a number of valuable functions, including making our differences at the group level meaningful and worthwhile:

**A sense of identity.** People get a sense of who they are and how they fit into their world by understanding their unique cultural histories. Learning about your ancestors and the struggles your group endured can help to foster a sense of personal pride.

**Denying differences doesn't make them go away.** Although there is difficulty in defining race genetically, there is a surprisingly strong concordance between people's self-identified racial categories and certain genes. These genetic groupings do also generally correspond to geographic differences in indigenous populations. Although most people would also like to see discrimination go away, there is no denying it still exists. When we do not assess differences in work outcomes across racial and ethnic categories, we cannot confront this discrimination.

**Colorblind usually means conforming.** Minority groups are often pressured to lose their unique way of dressing, speaking, relating to one another, and even their religion so they can conform to the way mainstream U.S. citizens act. The result is not really a colorblind society but, rather, a monochromatic society in which everyone adopts the dominant culture.

**An opportunity for support.** Acknowledging group differences helps us to identify other people who have similar cultural experiences. There is a feeling of kinship and bonding that people of Irish ancestry experience on St. Patrick's Day, or that Mexican Americans experience on Cinco de Mayo. Celebrating these cultural holidays gives us a chance to see that we are part of a larger cultural milieu.

The old metaphor of America as a melting pot has been replaced by the idea of a salad bar, made up of many distinct identities that do not need to blend into one homogeneous soup.

### Teaching Notes

1. Assign teams of students comprising three students each.
2. Assign Point or CounterPoint to each group.
3. Assign groups to focus on the issues in the Point/CounterPoint and to do some Internet or Library fact finding supporting their assigned positions.
4. In class, draw lots from groups assigned to a position.
5. Have the group members present their positions in persuasive presentation with the goal to address factors brought up by the opposing position.
6. Repeat for other groups.

or

Assign students to write a position paper on the Point or Counterpoint that contrasts the positions and draws conclusions based on facts.