

TEACHER-FACILITATOR MATERIALS FOR CORNELL INSTITUTE FOR  
WOMEN IN SCIENCE VIDEO SERIES

AGRIMA MAHAJAN, GRADUATE STUDENT IN SCIENCE

Agrima Mahajan is a top mathematics and science student from Singapore. She studied biology and biochemistry for years in her homeland and majored in it at Cornell University, so one would expect her to be planning for a career as a biochemist. Yet in her video, Agrima states that doing lab work “doesn’t speak to me”. She has a great deal of scientific ability and training, but she reports that a career in the Singaporean public service sector is more attractive to her than working as a bench scientist. Why doesn’t she prefer a career in basic science?

One possibility is that females are more excited by careers that involve living things (e.g., medical doctor, lawyer, veterinarian) than in careers involving symbol manipulations and non-living things (e.g., computer science, engineering).

A well-known British researcher, Simon Baron-Cohen and his coworkers, have argued that females are born with an innate motivation to orient toward people whereas males have an innate orientation toward objects. These innate differences lead the sexes down different career paths. As evidence, Baron-Cohen and his colleagues found male newborns looked longer at an object but females looked longer at a person (Connellan, et al., 2001).

Do you think this difference is the source of later career differences, with females drawn toward careers in nursing, medicine, veterinary science and biology and males drawn into fields such as engineering, computer science, and physics? Some evidence suggests that this may be the case, with a recent large-scale analysis showing sex differences in the people-versus-things dimension of vocational interests (see PDF by Sue, Rounds, & Armstrong, 2009; also PDF by Lippa, 1998).

Harvard psychology professor Elizabeth Spelke (2005), however, criticized this view, suggesting “male and female infants are equally interested in people and objects” (p. 951); she argued that the infancy results above are exceptions to the general finding of no sex differences in looking at people versus things. If correct, then the later career differences between men and women may have their roots not in innate preferences but in different patterns of socialization. What kinds of socialization might account for the later career differences?

As preschoolers, boys are more likely to play with toys that foster spatial skill, such as Llegos, erector sets, Lincoln logs, connex, etc. and girls are more likely to play with dolls and engage in social play. However, if these early differences are important in shaping later careers, then how can we explain the fact that girls do as well or better in math classes? After all, if playing with Llegos resulted in boys being better at math, then why do girls get better math grades throughout schooling, including college? And, speaking of college, nearly half of mathematics majors in college are women! Clearly this is a

complex issue with no easy or simple answer. One possibility is that females aspirations may have little to do with their math ability.

Researchers David Lubinski and Camilla Benbow and their colleagues found that females with high math aptitude are less interested in math-intensive careers than are males with high math aptitude. These researchers study unusually gifted adolescents, those who are in the top .01% of mathematics ability, i.e., the top 1 in 10,000. These are 13-year-olds who already score above 700 on the Sat-Math test even though the test is designed for much older students. Lubinski, Benbow, Webb, and Bleske-Rechek (2006) have reported that it is less common for adolescent girls to name math-intensive career goals even though they are gifted in math. So, among a pair of equally gifted students, the male is more likely to choose a math-heavy career. And this is true of less gifted students, too. A recent poll of 8- to 17-year-olds reported that 24% of boys expressed an interest in engineering vs. only 5% of girls; a survey of 13- to 17-year-olds reported 74% of boys interested in computer science vs. only 32% of girls.

Getting back to Agrima Mahajan, in middle school she thought that she wanted to be a biochemist, but as she got older she felt that a career in the Singaporean public service sector was more interesting. Do you believe she “owes” it to her gender and society to pursue a career in math and science rather than one in public service? If so, why?

#### Some Arguments:

- By opting out of a career in science, Agrima will not be helping to solve societal problems that depend on scientific breakthroughs.
- Agrima was supported by her government to be trained as a scientist but now she appears to be throwing away their investment in her.
- By not becoming a scientist, Agrima is letting down her gender.

#### Some Counter-Arguments:

- Agrima is a human being, entitled to pursue whatever career she finds fulfilling; she should not be held to represent her gender if the personal cost to her is a lifetime of disappointment.
- Agrima’s public sector work may affect the lives of more people than she could ever affect as a scientist.
- A career in public service is not the same as abandoning science; Agrima may end up using her scientific training to solve important societal problems.

#### Recommended Readings:

Connellan, J., Baron-Cohen, S., Wheelwright, S., Ba’tki, A., & Ahluwalia, J. (2001). Sex differences in human neonatal social perception. *Infant Behavior and Development*, 23, 113–118.

Lippa, R.A. (1998). Gender-related individual difference and the structure of vocational interests: The importance of the "People-Things" dimension. *Journal of Personality and Social Psychology*, *74*, 996–1009.

Lubinski, D., Benbow, C., Webb, R., & Bleske-Rechek, A. (2006). Tracking exceptional human talent over two decades. *Psychological Science*, *17*, 194–199.

Su, R., Rounds, J., Armstrong, P. (2009). Men and things, women and people: A metaanalysis of sex differences in interests. *Psychological Bulletin*, *135*, 859–884.

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