

CERI's

Women in Science Program

A report by the National Center for Education Standards, *Trends in Educational Equity of Girls and Women* (2000), noted that in fourth grade the number of girls and boys who like math and science is about the same, but by eighth grade twice as many boys as girls show an interest in these subjects. Research by other respected organizations, such as the National Science Foundation, reports similar findings. At the Ph.D. level, this gap widens considerably.

A number of factors contribute to this inequity, including:

- Societal stereotypes consistently convey messages that science is for boys, not girls.
- Boys receive much more praise for their academic contributions than girls. Girls often receive praise for being well behaved, organized, on time, or neat.
- Many believe science to be a field of study in which an eccentric man works alone in a lab. Why would a girl aspire to that career objective?

Furthermore, women who do attain higher degrees in science are often not recognized for their contributions. Some glaring examples include Rosalind Franklin's description of the three-dimensional structure of DNA in 1953, the famous double helix that was a milestone in science and heralded the era of modern molecular biology. This achievement was rewarded with the Nobel Prize for the discovery of the double helix going to three men. Then there is the story of Lise Meitner, now considered one of the most significant women scientists of the 20th century, but who was consistently ignored and denied recognition during her lifetime. In 1945, the Nobel Prize in Chemistry was awarded to Otto Hahn for the discovery of nuclear fission. In doing so, they overlooked physicist Lise Meitner who collaborated with him on the discovery, and was the one who provided the first theoretical explanation of the fission process. Nuclear fission was an unexpected phenomenon. It took Dr. Meitner careful study of the data and exceptionally creative thinking, breaking free of conventional preconceptions, to offer a theoretical physical explanation for fission in a report published in January 1939. The Nobel committee ignored Dr. Meitner's role, awarding the Nobel Prize in Chemistry to Dr. Hahn in 1944 for his discovery of the fission of heavy nuclei.

CERI helps contribute to advancing toward the goal of smoothing the road to science, mathematics, and engineering achievement for women. Through role models, publicizing achievement, and strong encouragement, CERI strives to create the climate for women to thrive and achieve and to prepare themselves and each other to apply their talents in scientific fields. For example, at CERI

- 66% of all scientists are women
- 60% of all Ph.D. are women
- The Science Director of CERI is a woman
- A CERI employee is the first female editor in the history of the “*Journal of Human Factors*”
- A female CERI employee serves on two National Academy of Sciences Committee

What are other things that CERI can do? There has been, too long, a belief that somehow natural forces would affect the needed change -- that simply the changing demographics would bring more women and underrepresented groups proportionally into the sciences. But, this is not happening. We note that making real change will require concerted effort at changing mindsets -- from one end of the pipeline to the other, and changing the culture of science, as it is now practiced. We need to understand, develop, and implement family-friendly policies in our institute -- policies which will benefit women, and men, and families, as well. We need to mentor and nurture young women, not just in K-12 education and college, but throughout their whole careers, as men have been mentored and nurtured, establishing and maintaining networks and support systems. We must identify and allow opportunities for women to advance in the ranks, so that there are more women in leadership. At the same time, we must make certain that young women do not impose glass ceilings upon themselves by failing to set their sights to the highest levels.

The price of advancement for women in science, perhaps, is similar to the price of liberty -- eternal vigilance -- and action. Talent, from every source and from all sources, is imperative for the innovation which gives us the ability to resolve the 21st century challenges which are unfolding. And, it may well be that recent ire over the notion that women do not possess the innate ability to do science has raised the issue to the front page, and that which may finally drive change. CERI is committed to vigilance and action toward the goal of fostering women in science.