



Not For Women Only

Regina Griego, Sandia National Labs



Are engineers a part of the political dialogue, or creating our national vision, for what we spend money on as a nation and as a world? Women are over 50% of the population. Engineered systems affect the everyday

lives of all people. The agenda of the engineering community dominated by men at least 20 to 3, and in leadership about 20 to 1, is not completely accounting for women.

I often ask myself, what would the agenda of the engineering community be if 50% or more of that community were women? In particular what if the engineering leaders were at least 50% women? If engineers have any real voice in what systems are built in the world, what would a voice sound like if women were represented equally?

As usual, I have to reach into my experience anecdotally; it grounds me. I have worked in three completely different business areas at Sandia: Nuclear Weapons Stewardship, Non-proliferation and Treaty Verification, and Satellite Ground Systems. Of those three, there were substantially more women in Non-proliferation and Treaty Verification, including a good number of women in management.

Another example: my daughter when she graduated in Industrial and Systems Engineering from the University of Arizona tried hard to find a non-defense job that made sense from a financial viewpoint; she was unsuccessful at that time.

Based on my experience and my own systems view of the world, I believe that women would turn toward systems that make the world more peaceful and im-

prove the overall quality of life. I do believe that some men are in this camp as well, but I believe the voice would be stronger and more clarion with powerful, smart women engineers in equal numbers to the men deciding that our priorities as a nation and as a world should be creating a better, less dangerous world for our children.

I ask myself why women are so few and I become very discouraged at the rate of change over the 33 years since I received my bachelors in Electrical and Computer Engineering. I am often still the only technical woman in a meeting of 10-15 people. The research [1] on the number of practicing engineers puts the average at 11%.

Wow, at this rate it will take 100's of years to achieve equal numbers. This is the same conclusion that a recent documentary made about women in public service and in media leadership [2]. They estimated that at the rate of change the numbers do not become equal for 500 years. How can we tolerate this as a nation? What is it going to take to create a disruptive shift, a sort of revolution?

I assert that we cannot wait. I believe the solutions, the systems that our world needs, are in the heads of many women. I believe the attunement with creating healthy communities is second nature to women.

During the INCOSE 26th International Symposium the group, Empowering Women as Leaders in Systems Engineering (EWLSE), is featured in two events.

I am leading a pre-symposium workshop for half a day on Sunday, July 17th. The overall goal of that workshop is to create the space for an honest dialogue about leadership in systems engineering, in particular from a women's perspective. The agenda for that workshop includes a panel "Beyond the Resume: Personal Journey of INCOSE Women Leaders," followed by a facilitated "world café" dis-

ussing aspects of leadership.

The panel will feature five panelists of recognized INCOSE women leaders with a moderator who is also well known in INCOSE, Anne O'Neill. Anne will create the space for sharing through a selected set of questions to the panelist and invite conversation from the audience. The facilitated sessions include four topics: "When are you at your best?", "Emotional Intelligence", "Storytelling", and "Power & Influence". These topics will be explored through two sessions of dialogue facilitated by awesome facilitators, both men and women.

The second event is part of the INCOSE IS Technical Program, a panel titled "Empowering Women as Leaders in Systems Engineering." There are six participants, two of which are men. I will be a panelist presenting on "The impact of culture on women in leadership."

At some point the conversation has to become very honest. We as an engineering community need to be asking the hard questions. Questions like: do awards that single out women make sense? How can I encourage young women and girls to enter a field that culturally requires you to morph who you are in order to survive, let alone thrive? Why is it taking so long. I mean, really, why? Until we become very honest with this conversation and create an urgency for change, I'm afraid my two daughter engineers will be asking similar questions 25 years from now.

[1] "Stemming the Tide: Why Women Leave Engineering," Nadya A. Fouad, Ph.D., Romila Singh, Ph.D., Mary E. Fitzpatrick, Ph.D., and Jane P. Liu, Ph.D., 2012 NSF University of Wisconsin-Milwaukee Report.

[2] "Miss Representation," Documentary by director, Jennifer Siebel Newsom, Initial DVD release: February 21, 2012.

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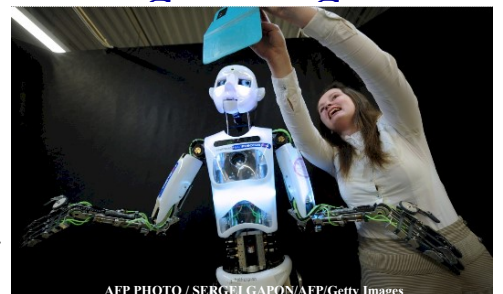
Girls Outperform Boys on Technology and Engineering

Heidi Hahn, Los Alamos National Lab

Girls outperformed boys on a national test of technology and engineering literacy that the federal government administered for the first time in 2014. Among eighth-grade students in public and private schools, 45 percent of girls and 42 percent of boys scored proficient on the exam, the National Assessment of Educational Progress, or NAEP. Overall, 43 percent of all students were proficient.

The test was designed to measure students' abilities in areas such as understanding technological principles, designing solutions, and communicating and collaborating. Girls were particularly strong in the latter. I hope that results such as these will help dispel widely-held biases about girls and women in engineering! Read full article at:

www.washingtonpost.com/news/education/wp/2016/05/17/girls-outscore-boys-on-inaugural-national-test-of-technology-engineering-skills



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