

The Role of Culture and Women's Persistence in Engineering: A Bi-Continent Roundtable Discussion

At a lively roundtable discussion in Berlin, STEM women in academia and industry from the United States and Europe covered a number of relevant topics, ranging from the biggest challenges facing women to effective policies and programs, to the role of male allies.

By Anne Perusek, SWE Director of Editorial and Publications

OVERVIEW

In conjunction with the Society of Women Engineers' WE Local Europe conference in May 2019, members of SWE's research advisory committee met with colleagues based in Germany, Romania, and Austria. The highlights below are taken from hours of recorded dialogue, transcripts, and notes.

The discussion was divided into three main areas. Key takeaways are summarized in hopes of stimulating additional dialogues to inform best practices.

PARTICIPANTS

Roberta Rincon, Ph.D., SWE senior manager of research, facilitator

Carlotta M. Arthur, Ph.D., director, Clare Boothe Luce Program, The Henry Luce Foundation

Caterina Cocchi, Ph.D., junior professor, Humboldt-Universität zu Berlin

Diane Foley, senior director, information technology, Raytheon Co.

Karen J. Horton, P.E., professor, mechanical engineering technology, The University of Maine

Alina Maria Negru, general manager, Emerson Cluj, Romania

Charlotte Reinisch, deputy main women's representative, Technical University of Berlin

Andresse St. Rose, Ed.D., senior director, research, evaluation, and policy, Center for Collaborative Education

Rishelle Wimmer, senior lecturer, information technology and systems management, Salzburg University of Applied Sciences

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QUESTION ONE: FROM YOUR PERSPECTIVE, WHAT DO YOU SEE AS THE BIGGEST CHALLENGE TO RETAINING WOMEN IN STEM?

The first discussion covered personal experiences, observations, anecdotes, and research data. While we can attribute many factors to the underrepresentation of women in engineering and the STEM professions overall, the underlying themes point to culture. As one participant noted: "It really boils down to culture and the way that translates into policies ... and certain policies can hinder women's career advancement."

In short, while the biggest challenge to retaining women in STEM is culture, this is expressed in a multitude of ways, including behaviors and expectations ranging from societal norms concerning gender roles, child raising, and educational practices, to workplace practices and policies.

In the United States, the lack of guaranteed paid or unpaid family leave has been an ongoing policy debate. It was quite a contrast for the U.S.-based participants to learn how family leave plays out in some European countries, where it can last two to three years.

“I liked the work, but it was a hostile workplace in part because the expectation was that everyone would behave like a man. And there would be meetings in the men’s room. They had meetings on the golf course. They’d have meetings at the bar. And those places were places where I was not necessarily even able to be physically in that space. From a woman engineer’s perspective, those situations would be impediments to her ability to reach the next level repeatedly... over and over again.”

— Carlotta M. Arthur

“One of the big messages young women often get is that success in STEM requires single-minded devotion. If you want to get a bachelor’s degree, get a Ph.D., pursue a career, it requires a single-minded devotion — that very outdated male-model. ... So, they begin to think, ‘Well, I could be successful in other areas and still have my other interests or goals,’ because, again, what we see based on the research in the States is that women who are successful in math and science usually have other interests, and they’re successful, generally.”

— Andresse St. Rose

CHALLENGES

- Maternity leave can be two or three years in some European countries, during which the technology changes. If a woman has another child, she may be out of the workforce from four to six years, after which many women don’t return. Conversely, in the United States, maternity leave is frequently no more than six weeks, creating a different situation that also may result in women not returning.
- Career instability and the male-oriented culture in German academic life are drawbacks for women. The lack of a tenure track beyond a very small percentage makes it difficult for women to understand or plan an academic career path, plus doing so requires mobility and a partner who can also be mobile.
- Young women are frequently discouraged by family from studying STEM subjects and are cautioned they will have difficulty finding a husband if they do so. Even without the concern that finding a partner will be difficult, STEM is not considered a suitable profession for women, particularly in families who do not have members in STEM professions.
- Negative messaging around being a scientist or engineer, including the misperceived notion that doing so requires “single-minded devotion,” makes these professions unappealing.
- Many IT companies and companies with large IT staff look to the “bro culture” of Silicon Valley as a model. This dissuades many women, who question why they should subject themselves to fighting it every day when there are other jobs that won’t require that energy.
- Women’s career advancement has been hurt by a lack of consistency and transparency in performance evaluations.
- Not enough women are in leadership, which is a function of the evaluation process. Men evaluate other men and will promote based on trust or potential, while women are not promoted on these criteria. What is seen as “leadership” tends to be male traits.
- Some well-meaning policies are more beneficial to men than for women. For example, men in academia may take the parental leave and then use that time to write and publish research rather than care for the newborn.
- Even in organizations that do not offer mentoring programs, men are still being mentored/sponsored, and women are being left behind.
- In industry, holding business meetings in places women can’t or don’t frequent puts women at a disadvantage.

ACTIONABLE IDEAS

- Companies and institutions develop policies that make returning after an absence more feasible and appealing. Pilot programs to help women return from maternity leave or other absences; the creation of more “off ramping” and “on ramping” opportunities.
- Develop policies that support women in academia through clear career pathways.
- Companies demonstrate to women that there is a career path for them in engineering. This includes outreach efforts and recruiting students early.
- Counter the messaging that portrays STEM careers as all or nothing, single minded, or giving up a more “typical” or “normal” life.

QUESTION TWO: CAN YOU CITE SOME EXAMPLES OF POLICY AND PROGRAM INTERVENTIONS THAT HAVE BEEN EFFECTIVE IN HELPING TO RETAIN WOMEN IN STEM? THIS COULD BE SOMETHING THAT YOUR INSTITUTION IS DOING OR HAS DONE, OR YOU'VE SEEN OR HEARD ABOUT FROM OTHER ORGANIZATIONS.

Establishing the tone and much of the content of the discussion, the initial response to this question was: “Every woman needs mentoring, and programs that provide support for a variety of topics that women care about.” From that point, various aspects of formal and informal mentoring programs — key interventions that bring positive results — were considered. The merits of male versus female mentors, mentoring teams, and the different but important role of sponsors were explored.

Closely related to mentoring are networks, which is one of the reasons a mentoring team can be helpful in providing access to different networks, as well as strategic networking. Further, sponsors can recommend women for awards and to serve on panels, extending the notion of networking.

The importance of clear policies; of bringing awareness to unconscious bias in the moment it occurs; and bringing more women into leadership roles were also discussed; and the necessity of

having a vehicle to combat men’s belief that there are no qualified female applicants for a position was noted.

Finally, it was pointed out that effective practices and policy interventions around the key milestones of hiring, evaluation, and promotion can help mitigate bias in workplace processes but do not necessarily change the underlying culture.

“At every stage, especially in STEM disciplines, having successful female students who motivate and mentor younger students, or female pupils, is really important because they show themselves as models. On higher levels, programs providing women in STEM support for any topic — any sensitive topic, starting from time management to solving conflicts, or how to manage a group, big or small.”
– Caterina Cocchi

“The places where I have seen people move is when we discussed gender differences, and then actually had shared examples. At work, I speak pretty provocatively about this topic. About six to eight months after one instance, a gentleman who was there said to me, ‘You know that thing you said, where a woman speaks and then a man says the same thing a few minutes later and it’s a great idea? It happens all the time.’ All of a sudden, he could see it. I opened the aperture so he could say, ‘Maybe there is something to this ...’ But I was in a unique position. I was in a more senior role, and I could say what I wanted to say.”
– Diane Foley

“Some German universities established active recruiting offices. Their focus lies on identifying female candidates who could fit the job. Often, search committees argue that they cannot find suitable female candidates, so female candidates addressed by universities’ recruiting offices can sometimes be a game-changer.”
– Charlotte Reinisch

“What has really helped retain more women in STEM was creating this career path showing that they can grow in different ways such as leadership, and also through mentoring programs...We have very strong women who are specialists, and showing them that they can become really good specialists and putting them in contact with other specialists has really helped reduce employee turnover. We also started up ERGs [employee resource groups] so people feel that they belong to communities of like-minded people such as the Women in STEM group, where they can develop themselves, building on common interests and passions.” – Alina Maria Negru

POSITIVE INTERVENTIONS

- Having access to both male and female mentors — a male mentor can provide a woman access and insight into the buddy/bro culture, and how to effectively navigate it. There are some issues a male mentor cannot understand, however, and a female mentor provides a different perspective.
- Strategic networking with mentors who can provide helpful information, such as which events to attend, can help with career advancement.
- Hiring committees that are not all male or all white; with key competencies required for the position clearly stated, with a defined rubric. When there are several finalists, return to the rubric and be rigorous in this process.
- Bringing more women into leadership roles increases the likelihood that different perspectives will become part of the conversation and the decision-making process regarding programs and policies.
- An initiative in Berlin that provided junior faculty from three different universities an opportunity to participate in a mentoring program; one of the participants described how she chose a male mentor in her discipline, and it turned out to be a very positive experience.

- Another university created a council of various administrators who come together to discuss campus culture and issues affecting women, and to develop methods to solve problems. These solutions are shared across the campus, so there are many people who can step in with advice or guidance when an issue arises.
- Bringing awareness to unconscious biases in the moment, when they occur. By pointing out unconscious bias, others become aware of the problem, and they are more likely to notice it when it occurs again. Acknowledge that it is hard to point bias out in the moment, especially if you are not in a position of authority.

QUESTION THREE: SOME RESEARCHERS THEORIZE THAT MEN MAY EXPERIENCE A TYPE OF “PIVOT POINT” THAT LEADS TO GREATER AWARENESS OF GENDER INEQUITIES. HAVING EXPERIENCED FEELINGS OF MARGINALIZATION OR OTHERNESS THEMSELVES, OR KNOWING SOMEONE CLOSE WHO HAS EXPERIENCED INEQUITIES, SUCH AS A DAUGHTER OR A WIFE, CAN RESULT IN AWARENESS AND SUPPORT OF GENDER EQUITY POLICIES. WHAT ARE YOUR THOUGHTS ON THIS THEORY?

Discussion began with one researcher’s observation that in her experience, men in STEM frequently mention their personal connections (wives, daughters) as the reason they support gender equity efforts. “That’s great, but it’s not enough ... We cannot wait for every man to have a daughter who aspires to a STEM field,” she said. Additionally, what more are they doing to help women in STEM, beyond just their own daughters?

Others wondered whether these men would care about equity if they did not have the personal connection. Further, why do men care now, considering that men have had wives, daughters, and granddaughters in the past who were interested in STEM? Is it the timing — because now it’s “hip” to be a male feminist? Yet another view was offered: That in the past, men did not want their daughters to be discriminated against, either, because they took it personally.

There was no consensus on whether men’s views of women evolve through changing habits, through

motivation, or the influence of larger societal changes. In other words, which of these contribute to men becoming more accepting of, even supporting, women in STEM?

Noting that there is frequently a cost to men who choose to support gender equity — as there is to anyone who is fighting for equity for those in the minority — how do we ensure that the benefit of doing so outweighs the cost?

“Men have had daughters and they've had granddaughters. They've had wives. They've known how hard it was for them, and it hasn't changed. So, I feel like it's more hip to be a feminist — or a male feminist right now — because of social media and social outcry. But I don't think that just having daughters or granddaughters makes that much difference. Maybe it helps those men to start thinking about the situation and have empathy, but I feel like it hasn't helped for a very long time. So why should it help now?”
– Rishelle Wimmer

“To the point of having some kind of a transformational moment, I talk to my students not only about the technical part of my internship, which was a hostile work environment long before case law had been established to address it. I tell them point-blank, ‘This is exactly why I couldn't talk to students about my experience for 30 years.’ And they sit there, and they're silent. And they look at me. And one of them will eventually go, ‘That's horrible.’ And so, there are ways that even individuals who are not the daughters and the granddaughters — I think individuals have some ability to move at least those people with whom they come in contact.”
– Karen Horton

FOR CONSIDERATION

- Diversity can function as a “game changer” and has led to improvements in Germany, particularly in academia, over the past 30 years. Some of this is attributed to the value international scientists and researchers have brought to German institutions.
- Having more women in STEM may make some men see, through experience, that there is benefit in diversity; but other men will need to see data that make the case for diversity in the workplace.
- Some people don't care about the data. But if the majority listen, or even the “right person” does, it can influence change.
- Addressing explicit bias will require a different strategy than just exposure to outstanding women scientists or engineers.
- Everyone can serve as a storyteller to help change people's minds about the need to address gender equity in STEM.
- Is the MeToo movement making a real difference? Or is it fleeting?
- MeToo conversations are not really happening in most corporate settings because of the focus on sexual assault or harassment rather than unconscious bias.
- Sometimes you have to make the business case for change because the moral argument doesn't work for everyone.
- It's bad enough when men are not allies, but it's worse when women who have made it up the ranks and through the struggles begin “acting like men.”
- Women alone can't end gender bias; men who are allies have to talk to other men, though there is a risk to speaking out; and other men need to be willing to listen. ✨