



Women in Nuclear Canada Conference

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Remarks – Rumina Velshi

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Canadian Nuclear
Safety Commission

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Introduction

Thank you for that kind introduction and thank you to the WiN conference organizing committee for inviting me to be here with you today.

Before I begin, I would like to take a moment to recognize that we are on the Traditional Territory of Treaty 6 First Nations and the Metis Nation-Saskatchewan.

I can't tell you how honoured I am to be standing in front of so many women working in Canada's nuclear sector today. As a woman who has worked in this sector since the early 1980s, being at an event like this – with so many of you – helps reinforce to me how far the nuclear sector has come in terms of the inclusivity of women.

Some of you may have attended the FORATOM conference held in Ottawa back in July. At that conference, I spoke about the changes I have observed over the last 38 years. I shared some of the most memorable challenges I faced early in my career at a nuclear power plant such as the inadequacy of female change rooms, having to wear men's radiation area clothing, and the prevalence of pornography in the workplace.

Today, I don't want to focus on the overt barriers women in the nuclear industry faced in the past. Thankfully most of them have been overcome. Instead, I want to talk to you about the more subtle, yet fundamental, barriers that still exist in male-dominated fields like science, technology, engineering and mathematics – or STEM. And I would like to share with you some of my ideas for overcoming them.

Earlier this month, I saw a tweet that infuriated me. A mother tweeted about her daughter's experience at a recent college apprenticeship fair in the UK. The daughter had put her name down for an engineering talk only to be told that she had been moved to a childcare talk instead because the engineering talk was all boys.

What message does this send? It says that – even in 2018 – STEM jobs are not for women.

I would like to know how many of you are in STEM careers? Raise your hands. Of our STEM colleagues, how many of you – at one point or another in your education or career – have felt like you didn't fit in or that you didn't belong?

As you can see from the hands around the room, you are not alone.

While many of us may have felt these feelings of exclusion, I believe it is critical that we fight to ensure that the next generation of girls never doubts that they belong in STEM careers.

I would like to share with you a story I find both inspiring and insightful. This is a story about a young female engineer who never felt like she fit in and who decided to dedicate her life to letting other girls know from a young age that engineering is both fun and for them.

This young engineer is Debbie Sterling.

Let me tell you a bit about her. Debbie attended engineering at Stanford and was one of a handful of girls in her class. She did well and discovered a passion for engineering. However, she struggled in her engineering drawing class.

Later on, she realized that she may have been at a disadvantage when it came to that course, as studies show that girls tend to have underdeveloped spatial skills compared to boys. Is this nature or nurture? After digging deeper, it became clear to Debbie that it is nurture. Kids who score highest on their spatial skills are the ones who grow up playing with construction toys like Lego. And these types of toys have been marketed towards boys for over 100 years.

Debbie found her life's goal – to disrupt the pink aisle at toy stores. Her plan: to develop toys that would ensure the next generation of girls do not face the same challenge she did.

Before developing prototypes, she watched girls play with existing construction toys. Often they would become bored and Debbie would ask them to show her their favourite toy – and time and time again they would bring her a book.

This led to her “aha” moment. She had the simple idea to put construction sets and stories together. She developed a character called Goldie and through stories children help Goldie solve problems by building simple machines using different engineering concepts.

Since using Kickstarter to get her idea off the ground, Debbie has been named one of Business Insider's 30 Women Who Are Changing the World (along with Sheryl Sandberg and Malala Yousafzai), and the Toy Industry Association named GoldieBlox the 2014 Educational Toy of the Year.

Debbie accomplished what she set out to do – she disrupted the pink aisle. So my question to this room is what can we disrupt?

I mentioned earlier that I find Debbie's story both inspiring and insightful. It is an inspiring case of how one person with a passion can impact the lives of so many others. Thanks to Debbie, thousands of girls are now being introduced to engineering at a young age. They are developing spatial skills, problem solving skills and confidence.

As we look towards developing solutions for the challenges of getting more women into STEM, I believe we can also draw some insights on possible solutions from Debbie's story. First, she never accepted that women aren't meant to be engineers. Second, she took the time to figure out what possible different motivations there might be for girls in construction play. Finally, she developed a role model so that young girls could see themselves as an engineer.

Her story also highlights the biggest challenge I believe we still face today – that there is a cultural bias penetrating our society from early childhood, through the current education system, and straight into our workplaces.

The problem

The cultural bias I am talking about is quite simple: it is the belief that boys and men are good at math and science while girls and women are not. While progress has been made – especially over the last 50 years – this bias still remains entrenched in our society.

Whether we're talking about trying to get more women into STEM programs at universities, encouraging women into STEM careers, or promoting women into the senior management ranks – I believe all of the barriers have their roots in this bias.

I don't want to linger here too long – as I want to talk about solutions – but in case any of you are skeptical that this bias still remains I want to take a moment to provide a few examples that illustrate its existence.

First, for young girls the problem of gender stereotyping begins much earlier than I think many of us realize. According to a professor at Ryerson, gender stereotyping starts to tell girls very early on that certain careers are not for them. Studies show, by the tender age of six, they've internalized those messages.

Where are they getting these messages? From all around them. For example, a recent study in the UK analyzed children's science picture books in public libraries. The research found that men were pictured three times more often than women, reinforcing the stereotype that science is a man's pursuit. The women were also generally depicted as passive, lower status and unskilled.

In a book on astronauts, the picture of the female astronaut was not next to any of the information about the work or training astronauts go through. Instead, her caption read "In zero G, every day is a bad hair day."

With biased messages being internalized at such a young age, we need to start exploring how to reach girls earlier. By the time we start promoting STEM jobs to girls in high school, we are already facing an uphill battle.

A second area where this bias remains problematic is in our universities and colleges. Women account for only 39% of university graduates with a STEM degree in Canada. The numbers get much worse when you look at some specific programs. Women make up only 23% of those who graduate from engineering and 30% of those who graduate from mathematics and computer science programs.

The academic community knows it has work to do to change these stats, but the cultural bias that makes these programs less welcoming to women still exists even amongst academic leaders in the field.

I'm sure many of you may recall in 2015 when, at the World Conference of Science Journalists, British biochemist Tim Hunt was taken to task for saying, "Let me tell you about my trouble with girls. Three things happen when they are in the lab: you fall in love with them, they fall in love with you, and when you criticize them they cry."

Now for those women who make it through the “bro-culture” of certain STEM programs, the next step in their journey is to enter the workplace where unfortunately they can’t always leave the gender stereotypes behind them.

How many of you have heard of the “hashtag I Look Like an Engineer” campaign?

The campaign was started by software engineer Isis Wenger who appeared in a recruitment campaign for her company. She quickly became the target of a barrage of negative online comments that blamed the company for hiring a model who was clearly too pretty to be a real engineer. The ad had attracted accusations that she wasn’t “remotely plausible” as a picture of “what a female software engineer looks like”.

She started the successful hashtag campaign to tell people she is an engineer and to do her part to break stereotypes about the industry. The hashtag has allowed female engineers and people working in STEM more widely to share their stories of prejudice in their fields.

Clearly, we still have a long way to go to address both the direct sexism many female engineers and scientists face within the workplace and the wider cultural bias that suggests careers in STEM aren’t for women.

Solutions

So what are we going to do about it? For inspiration, I’ll go back to Debbie who helped disrupt the pink toy aisle and I’ll ask you all again: what can we disrupt?

I would like to challenge everyone in this room to spend the next few days thinking about the following questions:

1. What are the smaller things that I can do in my daily life to help disrupt this cultural bias? And,
2. What are the bigger things that we can tackle together?

As you may have guessed by now, this is a passion of mine and I would like to share with you some of my initial thoughts on these questions.

I think there are three areas that we can address in the near term. First, we can raise awareness that there is a cultural bias in our society. Second, we can be mentors to support girls and women as they go through their STEM journeys. Finally, we can begin to rethink and reshape our current work environments and professions to make them more attractive and welcoming to future generations of women.

Let me go into a bit more detail on each of these.

The first thing I think we can do both individually and collectively is to help raise awareness that this cultural bias still exists.

Individually, each of us can raise awareness amongst our children, our families, in our schools and communities, and in our workplaces. There are multiple ways to do this, such as:

- We can be conscious of the toys and books we purchase for children, both girls and boys.
- We can be informed of the facts so that we can have conversations with teachers and neighbours – simply spreading the news of women’s accomplishments in STEM can make an impact.
- And we can be ready to share our own stories of discrimination or prejudice – and call it out when we see it – to ensure other women know they are not alone and to help our organizations enact change.

Collectively, I think that WiN as an organization is well-placed to raise awareness of the cultural bias through your outreach efforts as well as amongst your members, your global network, and perhaps more importantly with the other organizations you connect with such as the Canadian Nuclear Association. As the #ILookLikeanEngineer campaign shows, it is not necessarily resource intensive to get messaging out and to have an impact.

The second action – that I believe we are all in a position to take – is to become mentors to young girls, students, and colleagues. In 2015, the Ontario Society of Professional Engineers surveyed almost 1,600 engineering students, engineering interns, and professional engineers from across the province. 97% of female respondents thought mentorship was important when starting an engineering career after graduation and about two-thirds agreed that mentoring improves women’s career prospects and retention in the engineering profession.

We need to be there to support the next generation, and let them know that these are careers that they can succeed in. Each of us can play this role individually, but I think it is also important for organizations such as WiN, as well as for employers, to ensure mentorship programs are in place and supported.

A third area of focus for those of us working in the nuclear sector is to determine what a workplace free from this cultural bias might look like. The environment many of us work in was created by men for men. In nuclear, this includes everything from differences of professional opinion processes, to design assumptions for maintenance procedures, to shift schedules.

I think we need to ask ourselves: what would it mean to bring in women’s perspectives? And – more fundamentally – can we apply a gender lens to what is valued in our workplaces and professions to identify changes that will make them more welcoming to women?

These are not simple questions, but I think this is an area worthy of examination and where more research must be done. Perhaps, as a first step, we could begin by looking for the right partnerships to help us explore this area more fully.

For my part, as the President of the CNSC, I am privileged to be in a position where I can influence positive change at the CNSC, in the workplaces that we regulate and even more

widely at an international level. While I am still in the process of developing my own plan of action, one thing I know I can do is keep the issue alive and in the minds of senior managers by asking questions during Commission proceedings and at international meetings about gender representation and workplace initiatives.

Before I conclude, I would like to take a brief moment to flag two related issue areas that are important to me and that I hope are also important to WiN. The first relates to women's perceptions of nuclear risk and the second is about encouraging more effective participation by women in the CNSC's processes.

Women have different needs, different views, and different ways of assessing risk. We have seen this clearly in the aftermath of Fukushima. For too long, women's perspectives have not been considered in how we communicate about risk or in how we plan for and communicate in emergencies.

Beyond risk communication, I also find that women's needs and views are not being adequately considered in the work we do. I spoke earlier about applying a gender lens to our workplaces and professions, but I believe it is also imperative that we apply a gender lens to our work so that we can better serve our fellow Canadians. From regulations to strategic planning to outreach, I want to see this approach taken across the board and I especially want to see this lens applied during submissions to the Commission.

I will save going into more details on these topics until the next time you hopefully invite me to come before you. But I would be pleased to have a discussion about them at any point over the next few days and would challenge WiN to think about how we can address these important issues.

Conclusion

In conclusion, I believe the timing is right to take action to break the cultural bias that has plagued the STEM fields and our society for far too long. In Canada, we know the political will is there and that the ramifications of inaction are too big to be ignored. As our Minister of Science, Kirsty Duncan recently stated "We absolutely need women's ideas, their smarts, their voices. We get better results, when you include women, they may ask different questions, use different methodologies, and they may get results that benefit everyone."

Thank you.