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Women in STEM

A Q & A with:

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Dr. Lori West | University of Alberta

Dean Imogen Coe | Ryerson University

Cristina Amon

1) What is the biggest challenge you faced in your career and how did you overcome it?

I think one challenge is common among many aspiring engineers, independent of gender: finding role models who encourage their curiosity and help them imagine themselves pursuing a path in the STEM disciplines.

When I was growing up in Uruguay, I was fortunate that several people helped me reach my potential. First, it was a primary school teacher who encouraged me to “tinker” and take things apart. Then it was my parents, who let me continue exploring even when it meant finding our radio scattered in dozens of pieces across the living room floor. Later, it was a high school physics teacher who encouraged me to pursue engineering at the university level in Venezuela and, later, the United States. These champions, mentors and advocates — both men and women — helped me see the possibilities that an engineering career would open, and supported me in pursuing them.

Engineers face many challenges: a rigorous academic path, an exciting and demanding career, and combining work, family and other interests. As members of this exciting and rewarding profession, we also have boundless opportunities to learn, grow and make a difference in the world. I am grateful to my mentors, my colleagues and my family who have supported and encouraged me throughout my career.

2) What is your favourite thing about working in STEM?

It is truly an exciting time to be an engineer. When we consider the biggest global concerns we face today — energy, sustainability, health — it is clear that addressing these challenges requires collaboration among engineers and a wide range of disciplines, across the STEM fields and beyond. From developing new forms of energy, new ways of communicating around the world or new technologies that will fight disease and extend our lives, leaders working in multi-disciplinary

partnerships are at the forefront of developing solutions to these pressing issues.

Personally, one of my favourite things about my role as Dean of Canada's premier engineering school, and one of the best in the world, is having the opportunity to shape the engineering profession by advancing excellence in both research and engineering education. I pursued a career in engineering because I like the challenge of solving a complex mathematical puzzle, and I also wanted to create things that could have a direct and immediate impact on society and on people's lives. I am very privileged to play a role in nurturing the next generation of global engineering leaders, who will design novel approaches to improve quality of life for people across the globe.

3) What advice do you have for women in STEM fields or thinking of pursuing a career in STEM?

To young women who are inspired to create change in the world and who have a desire to make lasting positive impact on their communities, I strongly encourage them to consider pursuing a career in the STEM fields. I think that there are many talented young women who are interested in science and technology and who would do well in engineering, but who may be choosing other fields. I view it as my responsibility to let them know about the incredible contributions they can make to solving global challenges — in sustainability, transportation, health and much more — by choosing engineering.

All engineers need to have excellent technical competencies, the ability to think globally and act locally, and the competencies to lead change effectively within their organizations. These are the competencies we strive to provide in all of our programs at U of T Engineering. Diversity deepens the engineering creative process, enhances student experience and enriches the profession with different perspectives — it is a core value of U of T Engineering. I am pleased to share that for the past three years, we have welcomed more than 30 per cent women in our incoming first-year undergraduate class, and this year that number grew to 39.6 per cent, the largest proportion in our Faculty's history and the highest in Canada. Additionally, nine of the 14 faculty members hired in the past year are women. There remains work to do in continuing to diversify our profession — and all STEM disciplines — but we are making tremendous progress.

4) What is your advice for men in STEM fields?

Both women and men have an opportunity to be positive role models to all children curious about science, technology, engineering and math — in order to enrich the STEM disciplines with a plurality of perspectives, we must all work side by side to cultivate diversity. My advice to the next generation of engineering leaders is to develop advanced communications and leadership competencies alongside your technical expertise: our profession and our world are changing rapidly and we must innovate constantly to lead in today's complex global environment. This can only be achieved through true collaboration — by listening to and incorporating a wide

array of ideas and viewpoints, and working together across traditional disciplinary lines.

Lori West

1) What is the biggest challenge you faced in your career and how did you overcome it?

A challenge in my career has been taking on too many things (out of general enthusiasm), and then trying to balance all the ensuing commitments. Is this related to being a woman? Perhaps there is a gender-biased trend to this (speaking without personal knowledge on this point). When one is over-committed, the bigger challenge becomes management of ups and downs of an academic career that inevitably occur over the years. When too busy to deal with conflicts sensibly and calmly, these can become mammoth obstacles.

2) What is your favourite thing about working in STEM?

Science inherently involves curiosity. This is my favourite aspect of working in stem because curiosity always leads one along intellectually stimulating pathways.

3) What advice do you have for women in STEM fields or thinking of pursuing a career in STEM?

Be bold. Be fearless. Keep a broad interest across stem and the arts. Have fun. Say yes to every opportunity.

4) What is your advice for men in STEM fields?

Ditto as #3 above

And be aware and supportive of women in stem and the issues that may impair their full participation; you can, and must, be part of the solution; they are your sisters, partners and sometimes mothers!

Imogen Coe

1) What is the biggest challenge you faced in your career and how did you overcome it?

Don't know - I have had very big challenges in life. I can't think of a single big challenge - some things are harder, some weeks are harder - but then the same things seem easier at other times. Any challenge required the ability to take a step back, reconsider, perhaps take some time. Be really intentional about not taking work-related things personally - learning how to develop thick skin. There was a time when I felt very much attacked by a collective of individuals in my workplace but I had good people around me who helped me see past the emotion and focus on the rational but let me be emotional in the moment - because we are all human and things affect us. Compassion, empathy, humanity - these are all virtues I value very highly in myself and in others. In life and in any career. Everything in the end is about relationships with those around us - we want those to be positive and to build us up. Not the opposite.

2) What is your favourite thing about working in STEM?

I'm naturally curious - I always have questions - so the great thing about being a scientist is that I get to work in a profession that is all about asking questions and figuring things out.

3) What advice do you have for women in STEM fields or thinking of pursuing a career in STEM?

Be courageous, have courage, don't try to be perfect, don't listen or associate with people who don't believe in you, bring down, make you doubt yourself. Don't listen to the doubting voice inside. Learn tools and strategies to challenge the barriers, demand what you deserve and hold people accountable (we need to do a better job of training young women how to do that - we need more skills training and I have ideas).

Build your network of champions and supporters - have a strong network of allies - men and women. Ask for help from people who want you to succeed. Pick your partner very carefully - do not waste time with a partner who doesn't support and respect what you do as a career. I am a survivor of an abusive relationship and when my partner was removed from my house by the police, my boss (the Dean) said to me that I would now be stronger because I wasn't being under-mined all the time. I thought she was crazy but she was absolutely correct. I was better off as a single parent of a 2 year old and a 6 year old working as a scientist - than I was with a partner. It can be done. I had a fabulous network of wonderful friends (no family on this side of the Atlantic) - but a network of people (the village that helped raise my children when they were small) and colleagues who supported me.

Don't match socks (there's a story there), you can have it all but you don't have to DO it all - outsource the stuff you don't like to do (cleaning house is a standard one for many of us - but some people find that rewarding). Never take any rejection (job, grant, manuscript) seriously or personally (a man told me that early in my career - I hold that advice close - it has helped).

4) What is your advice for men in STEM fields?

Educate yourselves about the issues. Listen, listen more, listen a lot.... to what women have to say about their experiences. I heard a story last week about a couple of women professors explaining to a male colleague about some gendered behaviour that they experienced which they felt a male professor probably wouldn't - he listened to the story and then explained to them that he couldn't see that it was really a big deal. He completely denied their experience which left them feeling that their experience wasn't legitimate. Men need to listen and educate themselves on the vocabulary of equity (things like implicit bias, stereotype threat, imposter syndrome etc.) - they need to understand what it means to be an ally to women in STEM and they need to step up and call out unacceptable sexist behaviour by other men. That is a hugely important and impactful behaviour that I have seen progressive male allies engage in and it really makes a difference.