Canada urgently needs to diversify in science, tech, engineering and math: report

Experts say ‘bro mentality’ is a major barrier for women to enter those fields

By Anne Gaviola, CBC News Posted: Oct 14, 2017 5:00 AM ET Last Updated: Oct 14, 2017 5:00 AM ET

Ana Sofia Barrows has a degree in medical physics but has been told she looks like someone who should be in fashion or communications. Those stereotypes could be holding Canada back from diversifying in fields like science, technology, mathematics and engineering (STEM), a new report says. (Clifton Li)

Ana Sophia Barrows graduated with a degree in medical physics, and the 24-year-old works in the science field.

Yet she's been told, on more than one occasion, that she doesn't look like a scientist.

She says someone once told her that she looks like someone who should be working in fashion or communications.

"Those stereotypes should not exist," she says. "Those comments are not very appreciated because why would scientists look different than anyone else?"

Comments like those may seem innocuous, but according to a new report released by Ryerson University this week, they represent a major challenge to getting more women into male-

dominated fields like science, technology, mathematics and engineering, known collectively by the acronym STEM.

Contributors to the report say Canada urgently has to figure out how to foster diversity — whether that's based on gender, race or physical ability — in STEM. It warns of negative consequences for productivity, economic growth, prosperity and our ability to compete globally. In short, the reports says, increasing diversity in these fields benefits everyone.

"The risk of not getting it right is huge," says Imogen Coe, dean of Ryerson's faculty of science, who spearheaded the report. "We're missing out on human capital, we're missing out on human potential."

Workshops and science camps won't cut it

To avoid missing out, the report recommends changing perceptions and challenging stereotypes within STEM-based professions — what Coe describes as "bro culture."

"Workshops for women in STEM and science camps for girls won't change participation rates of women unless the culture and workplace also increase accessibility by removing systemic barriers and bringing in accountability and consequences," she says.

Coe believes this means a move away from the pervasive "bro" mentality in many STEM workplaces.

The biggest gender gaps in education and jobs exist in STEM fields, according to research by the McKinsey Institute (Shutterstock)

The statistics suggest young women aren't flocking to STEM the way their male counterparts are. The McKinsey Institute points out that in Canada **gender gaps are most significant in STEM education and jobs**.

Coe says women are steered away from STEM from a young age.

"What happens very early on is gender stereotyping starts to tell girls that's not for you, that's not for you," she says. "Studies show, by the age of six they've internalized those messages."

What men do matters, too

The report highlights the need to include men as allies in improving awareness around implicit and explicit bias.

Barrows is married to a scientist, and both she and her husband noticed a difference in how they're treated when they meet people for the first time.

"People ask us what our careers are, and they get fascinated by his and keep elaborating on his, while in my case it doesn't really matter as much," she says.

That's prompted her husband to make a point of explaining what she does, as well, and stressing the importance of her work.

"One of the things that I really appreciate from my husband is that he has acknowledged this problem," she says.

The Ryerson University report suggests it's an urgent economic imperative for Canada to increase diversity in STEM. (Shutterstock)

Coe says building awareness, among both men and women, is half the battle.

"We have to acknowledge that there are issues related to who has the power and who needs to share power, and potentially even give up power, in increasing diversity and inclusion," she says.

Coe believes the challenge lies in convincing everyone that change is necessary. "There's this sort of cognitive dissonance between realizing that it's in your best interest and refusing to actually participate."

Words of discouragement

Barrows says if she had followed the advice of a friend, she might not have pursued a career path in STEM at all.

She mentioned to a male friend that she was considering dropping science for another major.

"The person's reaction was that it was OK for me to decide to drop my degree and pursue something more female-like because I didn't have to stress as much about having to support a family like if I was making the main income in the family," she says.

She found it disheartening that it was assumed she didn't have to worry about the burden of being the main breadwinner.

"It was not an encouraging comment," she says. "It's not something you should be telling someone."