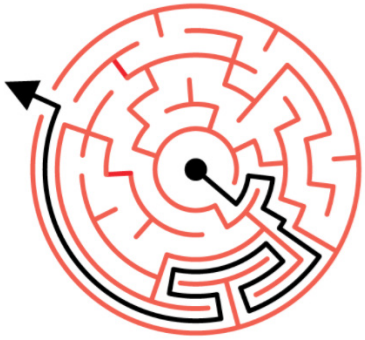
Breaking Gender Barriers in STEM - Whose responsibility is it?

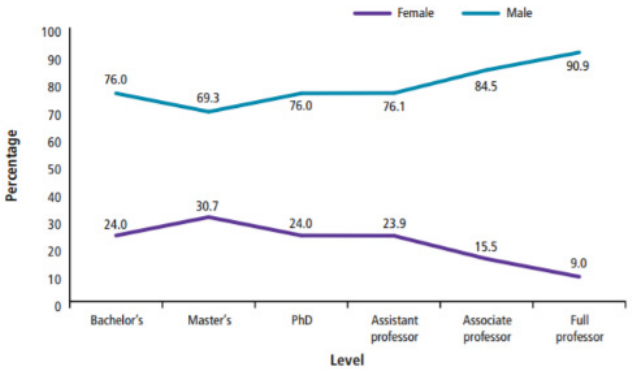
What are the problems?

— The gender gap: women 57.1% of students but 35.7% at the full-time faculty level (2012).
— Gender gap in physical science persists at the undergraduate level.
— A more comprehensive alternative to the "**leaky pipeline**" analogy, describing the progressive loss of women at every stage of career advancement, is the "**glass obstacle course**". This refers to the invisible barriers, often unseen by the individual experiencing the barriers, that consistently arise over the course of the individual's career in formal and informal ways.
— Pay equity discrimination persists: in 2013, women professors earned 88% of men professor salaries (CAUT, 2012).

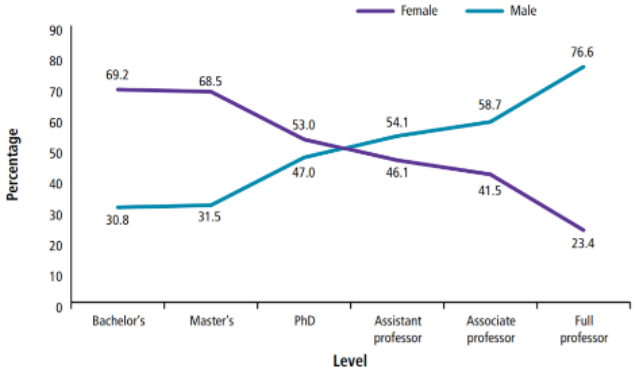
"The glass obstacle course"



Physical Sciences and Engineering



Life Sciences



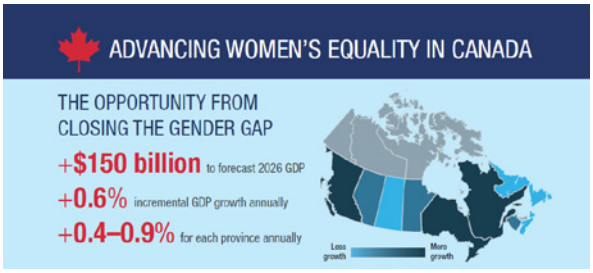
Council of Canadian Academies, 2012

What are these barriers?

— Outright sexism and harassment.
— **Implicit bias**: the attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner.
    - eg.: reference letters written for men more likely to include "brilliant", "assertive" whereas women more likely to include relationship building characteristics like "nurturing", "caring".
— Difficult work-life choices, women more likely to do most of household chores.
— **Imposter syndrome**: the experience of feeling like a fraud, like you are not good enough despite accomplishments that prove otherwise, and the fear you will be exposed.
    - Affects everyone but disproportionately affects women.
— **Intersectionality:** Intersectionality is a term that describes the intersection between social categories like gender, race, class, sexual orientation, ability, etc. and how this affects an individual's experience of disadvantages and discrimination.
    - eg.: women of colour least likely to see their futures in academia compared to white women and men of colour.
— Lack of effective role models/mentors.
— Exclusion from "Old Boys Club" resulting in lack of network: the connections that get made outside of the workplace are important for advancement, but women can feel left out.
— Pay equity discrimination persists: in 2013, women professors earned 88% of men professor salaries (CAUT, 2012).

Why this is important for everyone?

— Diverse groups outperform homogenous groups productively and creatively.
— A matter of social justice.
— Since women are still the main caregivers for a family, practices that include women will lead to better work environments for all, especially in terms of work-life balance.



McKinsey & Company, 2017

What are the solutions?

— **EDI** policies: need to promote Equity, Diversity, and Inclusion in our workspaces.
— **Allies:** people who recognize the unearned privilege they receive from society's patterns of injustice and take responsibility for changing these patterns.
— Promoting STEMM to girls to break science gender stereotypes.
— Local initiatives: groups or seminar series to provide spaces to talk about these issues.
— Quotas/targets for women/minorities in hiring processes.

Current practices

— From the Government of Canada research institutions:

- NSERC: adopted EDI statement in September 2017 and promotes women specific research chairs and scholarships
- CIHR released a Gender Equity Framework, including measures to address gender bias in grant reviews.
- CRC: Tier 1 limited to 2 terms to bring in new researchers, gender targets, government will withhold funding if targets not met

— Athena SWAN Charter in the UK: to encourage and recognize institutions that commit to advancing the careers of women in STEMM
— Local universities (McGill, Concordia, UdeM, UQAM): employment equity policy - commitment to EDI, applicants option to declare as underrepresented group
— Academic hiring at McGill: search committee must undergo equity training and short-list must include at least one member from any underrepresented group
— Action Plan for Inclusive Excellence: a plan agreed to by all Canadian universities to collect and make public demographic data of students, staff, and faculty

Discussions questions

— What barriers do women face in obtaining leadership positions in STEMM? Share first-hand or second-hand experiences or barriers in STEMM.

— What local solutions exist in your community? What others can you think of? What can we do as individuals?

— What could our institutions be doing to promote women in leadership in STEMM?

Useful resources

Statistics on academia from Canadian Association of University Teachers (CAUT)
https://www.caut.ca/latest/publications/almanac

Report on the status of gender in research in Canada by the Council of Canadian Academies: Strengthening Canada's Research Capacity - The Gender Dimension (2012) http://www.scienceadvice.ca/en/assessments/completed/women-researchers.aspx

McKinsey & Company and LeanIn comprehensive studies on women in the private sector:
https://womenintheworkplace.com/

Summary of reference letter bias research:
http://www.sciencemag.org/careers/2016/10/recommendation-letters-reflect-gender-bias

The Glass Obstacle Course
http://genderandset.open.ac.uk/index.php/genderandset/article/view/205

Why diversity matters
https://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters