

# Breaking Barriers: Women in Male-Dominated Industries

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Date: 2024/11/28

“One never notices what has been done; one can only see what remains to be done.” These words from Marie Curie resonate today as women in STEM (Science, Technology, Engineering, and Mathematics) continue to face numerous obstacles that limit their potential. The challenges that women encounter not only affect their career aspirations but also impact society as a whole. From discouraging adolescent girls to perpetuating unhealthy work environments, these barriers must be addressed.

## Underrepresentation in STEM

One of the most pressing issues is the significant underrepresentation of women in STEM fields, where they comprise less than 25% of the workforce in Canada (Commission, 2024). This lack of representation is alarming and heartbreaking. Systematic barriers, including insufficient support from educational systems and a lack of mentorship for women from underprivileged backgrounds, hinder their pursuit of careers in these industries. Critics may argue that STEM fields are merit-based and that women simply choose other paths. However, this perspective overlooks the inherent gender bias present in educational settings, where girls often struggle to see their potential.

Research by Jessica R. Gladstone and Andrei Cimpian shows that effective mentorship can positively influence all students, particularly those from underrepresented groups. They found that “when the role models belonged to groups that are underrepresented in STEM (e.g., women, Black people), they often had positive effects for all students, regardless of demographic similarity” (Gladstone & Cimpian, 2021). Without accessible role models, young girls may feel isolated and uncertain about their place in STEM, perpetuating the cycle of underrepresentation.

## Inequality in the Workplace

Beyond representation, the gender bias within workplace environments creates further obstacles. An unhealthy workplace culture discourages girls from pursuing careers in these fields. Gender bias can lead to women being undervalued and overlooked, directly contributing to the gender pay gap. According to Statistics Canada, women earn, on average, 87 cents for every dollar earned by men (Statistics Canada, 2024). This gap is not just a statistic; it reflects the deeply rooted inequalities that undermine women's financial stability and stifle their potential.

Imagine working just as hard as your male colleagues, only to receive a paycheck that suggests your contributions are less valuable. Research indicates that identical resumes and applications are perceived differently based on the applicant's gender, revealing the extent of bias in hiring practices (Ellemers, 2018). To foster inclusivity, companies should implement regular salary audits to ensure pay equity and introduce mandatory training that addresses gender bias.

## **The Ripple Effect of Underrepresentation in STEM**

The underrepresentation of women in STEM not only affects individual aspirations but also has a broader societal impact. When women are absent from innovation-driven industries, we lose diverse perspectives that can drive more inclusive problem-solving. For example, research indicates that diverse teams are more likely to generate creative solutions and anticipate the needs of underrepresented groups (Barrios & DiDona, 2015). Without women contributing their unique insights, critical areas like healthcare technology, artificial intelligence, and environmental engineering may fail to address the needs of half the population effectively.

This exclusion perpetuates a feedback loop: young girls looking for role models in STEM see fewer women in positions of influence, reinforcing the perception that these fields are inaccessible. Over time, this lack of diversity can hinder technological advancements and economic growth, as societies fail to tap into the full potential of their workforce. By addressing these systemic barriers, we not only empower women but also ensure that the future of STEM reflects the diverse needs of a global population.

## **The Long-Term Consequences of Workplace Inequality**

Workplace inequality has ramifications far beyond individual careers. When women are consistently undervalued or overlooked, it sends a message to future generations that their contributions will not be equally rewarded. This discouragement can deter young women from pursuing careers in these industries altogether, exacerbating the cycle of underrepresentation. Beyond financial disparity, the gender pay gap limits women's ability to invest in their futures, from pursuing further education to achieving economic independence.

Moreover, the absence of women in leadership positions perpetuates a lack of female voices in decision-making processes, reinforcing a workplace culture that often prioritizes male perspectives. This imbalance can result in biased policies, products, and services that fail to meet the needs of all users. Addressing these inequalities is not just a matter of fairness—it's a critical step toward building a more innovative, inclusive, and prosperous society.

## **Breaking the Cycle: Inspiring the Next Generation**

The impacts of addressing these barriers extend beyond the present; they shape the future of young girls worldwide. When women succeed in male-dominated industries, they serve as powerful role models, showing the next generation that barriers can be overcome. These successes create a ripple effect, encouraging more girls to enter STEM fields and ensuring a more balanced workforce. Initiatives that celebrate female achievements in STEM—such as award programs, conferences, and media representation—are essential to breaking the cycle of discouragement.

As Ravina Mutha (2021) emphasized, creating space for women's voices leads to structural changes that benefit everyone. Companies that prioritize gender equity and inclusivity see higher employee satisfaction and retention rates, which ultimately translates to better productivity and innovation. By dismantling workplace barriers today, we create a future where women not only participate in these industries but lead them, driving meaningful progress and equality.

## **The Path Forward**

Society must confront the barriers that women and young girls face in STEM fields and work environments. In schools, the reality remains: a young girl raises her hand confidently, yet as the only girl in the room, she questions her belonging in the field she is passionate about. As noted by Ravina Mutha, “some women still have to break down doors and force themselves into closed meetings, just to have their voices heard” (Mutha, 2021).

This evidence is a call to action. While the path to change may be challenging, it is far from impossible. By implementing effective solutions, we can create an environment where women can thrive in male-dominated fields. Just as Marie Curie persisted through her barriers, so too must women continue to overcome challenges in STEM.