Million Women Mentors
Busting Myths about Women in STEM
Million Women Mentors (MWM), an initiative of STEMconnector, is a national and global movement to spark the interest and confidence in women and girls to pursue STEM careers and leadership opportunities through the power of mentoring.
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While women comprise nearly 50 percent of the workforce, they represent only 24 percent of the STEM workforce. Many people assume this disparity is because women are not as interested as men in STEM, or not as good at STEM subjects as men. Yet research demonstrates these assumptions are more myths than reality. There are many nuanced reasons why women remain severely underrepresented in the STEM workforce. In this brief, we will explore four common myths about why women do not pursue STEM careers at the same rate as men, along with several best practices for employers to recruit and retain more women in STEM.

The proportion of women in the STEM workforce is nearly half of the proportion of women in the total workforce

47%  
% of women in the total workforce

24%  
% of women in the STEM workforce

Despite the myth that girls lose interest in STEM during K-12 while boys remain interested, research demonstrates that girls maintain and lose interest in STEM at very similar rates as boys throughout their K-12 education.\(^2\,^3\)

**MYTH #1:**

Boys and girls both lose interest in STEM at similar rates throughout their K-12 years. By the time they reach high school graduation, only approximately one third of all students report interest in STEM. Increasing the frequency and duration of exposure to STEM role models and experiential learning opportunities in and out of school will help build interest among all students.

Additionally, during their K-12 years, girls start to receive messages from society and family around traditional roles and career expectations that impact their later decisions to pursue STEM postsecondary and careers.\(^4\,^5\) Providing greater exposure to female role models and mentors can bolster girls’ interest and confidence despite these messages.

### Expresed interest in STEM

<table>
<thead>
<tr>
<th>Grade</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th</td>
<td>68%</td>
<td>66%</td>
</tr>
<tr>
<td>12th</td>
<td>34%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Women have lower self-confidence in their STEM abilities than men do, even when they perform at the same achievement levels as men. This lack of confidence can undermine their performance and their interest in pursuing STEM careers. Many factors influence women’s confidence in their STEM abilities, including improving their sense of belonging STEM fields and addressing social and familial gender biases and stereotypes.\textsuperscript{7,8,9}

**MYTH #2:**

It is a common misconception that men perform better in STEM subjects than women. However, not only are women as interested in STEM as men, they are also as proficient as men in STEM subjects throughout K-12 and into postsecondary.\textsuperscript{6}

\begin{itemize}
  \item Women who are proficient in STEM in 12th grade: 23%
  \item Men who are proficient in STEM in 12th grade: 26%
\end{itemize}

MYTH #3: By the time they graduate college, women are significantly less likely to earn STEM degrees than men. However, despite common belief, women begin college with similar levels of intent as men to pursue STEM degrees.

**Interest in STEM in 12th grade vs. earning a STEM bachelor’s degree, by gender**

<table>
<thead>
<tr>
<th>Interested in STEM in 12th grade</th>
<th>Earn a STEM degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women: 28%</td>
<td>Women: 11%</td>
</tr>
<tr>
<td>Men: 34%</td>
<td>Men: 27%</td>
</tr>
</tbody>
</table>

National Center for Education Statistics: https://nces.ed.gov/programs/digest/d17/tables/dt17_318.45.asp

**SO WHAT IS THE REAL PROBLEM?**

- Both men and women leave STEM degree pathways at higher rates than they leave other majors. In fact, less than half of all students who start as STEM majors earn a STEM degree. Supporting students who are not prepared for college-level STEM coursework, embedding more experiential learning, and creating a welcoming atmosphere for all students can address the high attrition rate.

- Women leave STEM degree programs at higher rates than men. They often switch to a non-STEM major because they lack a sense of belonging in their courses and/or feel unwelcomed by peers and faculty. In order to help female postsecondary students persist in STEM majors and envision themselves in STEM careers, institutions can address negative cultural norms and assumptions, provide students with female role models working in STEM, and expose students to real-world STEM work experiences.13,14,15,16
It is often assumed that when women leave STEM careers, they leave the workforce altogether to either raise their families or for other personal reasons. If this were the case, however, women would leave STEM jobs and non-STEM jobs at similar rates. Women leave STEM jobs at much higher rates than women leave non-STEM jobs, though, proving there are other factors that cause women to leave STEM jobs.

SO WHAT IS THE REAL PROBLEM?

- Despite the common myth that women leave STEM careers to raise families, research demonstrates that women leave STEM for many other reasons, most often citing workplace unfairness and discrimination. Women in STEM report discrimination and harassment on the basis of their gender at much higher rates than their male colleagues. Addressing this challenge and improving retention of women in STEM requires building awareness, enhancing training, and changing practice across the STEM workplace, alongside a commitment from senior leadership.
Leading employers recognize investing time and resources in developing their female STEM talent pipeline will make their employees and their company more successful in the future. When organizations support women, they create an environment where women are more likely to persist and thrive. Employers that embed diversity and inclusion into their corporate culture will create safe and welcoming places for their employees, enabling greater individual growth and corporate value. These practices have to be embedded into the strategic goals and practices of the company in order to see true impact.

1. **Establish a mentoring program for current and future STEM workers**

   Mentoring improves outcomes at every age and stage of women in STEM. In fact, having a role model in STEM is one of the largest influences on a female’s decision to pursue STEM fields. Young girls who develop mentee relationships with adult women in STEM are more able to envision a future for themselves in STEM. Female professionals who have mentors can access necessary advice and support to help navigate the workplace and further their careers.

2. **Provide career coaching opportunities for female STEM employees**

   Career coaching helps female employees succeed in traditionally male-dominated STEM fields. Sponsors, coaches, and subject matter experts help women build their networks and prepare them for leadership roles in the future. These components are most effective when provided to female STEM employees early on in their careers, increasing chances that they choose to stay in the STEM field.

3. **Create equitable systems of pay and promotion**

   New approaches to performance management, coupled with efforts to combat unconscious bias, create more equitable pay and promotion outcomes for women in the STEM workplace. Traditional measures used to drive promotions, such as number of publications, can disadvantage women who take time off to care for families. Joint evaluations and improved manager awareness can combat unconscious bias and gender stereotyping in the review and promotion process. This combination of best practices improves gender parity in promotion and encourages women to remain in STEM careers at the critical mid-career and senior levels where they currently leave at the highest rates.

4. **Foster an inclusive workplace environment for women**

   Combating a culture that leaves room for discrimination within STEM workplaces will help women feel welcome and comfortable in their work environments to remain in the STEM field and to thrive. Employers can work to create an inclusive culture by combating negative behaviors, such as raising awareness about discrimination and not tolerating sexual harassment. Employers can also encourage positive activity, such as ensuring equitable access to senior leaders among all employees.
ENDNOTES


