CHAPTER 5:
Girls’ Leadership and STEM

CHALLENGE

Typically, women’s leadership has been in a few areas: the home, teaching, nursing, social services and in activism to correct injustice. To support women’s advancement, it’s important to encourage women and girls to step forward in every sector to ensure that systems include all people and foster respect for one another and the planet.

Girls need training and encouragement to enter and stay in fields and leadership positions that have largely been closed to them. In the coming years, the biggest opportunities for high-quality, well-paid jobs will be in the areas of science, technology, engineering, and math (STEM). In fact, a shortage of 1.4 million computer workers is expected by 2020, creating many highly rated job opportunities. Women’s perspectives are vastly underrepresented in these fields—women represent 48% of the workforce, but hold only 24% of STEM jobs. Even when women enter these careers, they have a high dropout rate due to gender-biased work environments. The solution is to achieve a more balanced ratio and to change work conditions to accommodate family healthy work practices.

Additional pipeline challenges include bridging the lack of communication between STEM initiatives; everyone is reinventing the wheel and there is a need to share best practices. These initiatives must be intentional about including
difficult-to-reach girl populations in recruitment efforts across the country, including rural areas. All too often, elementary school teachers unintentionally share lack of confidence in math with girl students and school opportunities are limited in STEM programs that are extracurricular rather than integrated into the curriculum. Girls and women often face sexual harassment in male-dominated classrooms and workplaces, and pregnancy discrimination can dissuade women seeking PhDs and academic research grants in STEM fields. Girls need role models and mentors who communicate passion for the field and who model career paths that exercise more than a single, specific skill such as coding. Girls need tech experience to get a job in tech, but they are often required to have significantly more experience to overcome the gender bias in order to be hired.

With great opportunities for economic security and advancement, women and girls have the potential to achieve equality in the new and dynamically growing STEM sector. If they are not represented fully in this sector, an important opportunity for women’s equality will be lost in the next generation. Moreover, we will be left out of influencing the design of future technology and economic systems if we don’t prepare young girls to lead in this sector.

Since STEM is so important, the recommendations are focused primarily on encouraging girls and women to enter and stay in STEM careers. It is only one aspect of girls’ leadership and as this report evolves, we will add further recommendations on girls’ leadership in other sectors.
Determine the gender representation of women in STEM fields and what is needed in your city to encourage girls’ leadership.
- Create an executive summary to inform business and the general public about this issue.
- Use data to formulate a plan of action to encourage more women and girls in STEM.
- If your city is doing a great job in this area, develop a communications plan for reaching neighboring cities or regions to share your best practices.

Dedicate revenue streams from taxes to fund robust public STEM education.
- Through cross-sector partnerships with tech/science corporations, fund scholarships and programming, and develop internships and mentoring opportunities.
- When negotiating budgets, utilize local data and existing reports to demonstrate need (e.g., the Institute for Women’s Policy Research Status of Women in the States and Girl Scouts research).
- Develop incentives for companies to keep mid-career women in STEM.

Where possible and when a mayor has the authority, encourage school systems to introduce technology and engineering into the curriculum at age-appropriate levels at the elementary level to make them as standard as math and science.
- Connect STEM course lessons with real-world problems when teaching, to provide contextual learning.
- Make National Center for Women & Information Technology (NCWIT) materials available in public spaces and distribute to educators/STEM entities.
- Monitor current research and stay abreast of the pros and cons of introducing technology at too young of an age and the impacts to normal social skill development.

Through public/private relationships, encourage STEM companies to train, hire and retain more girls and women.
- Designate a liaison within municipal government to foster robust collaboration with STEM corporations.
- Measure the baseline of gender composition in STEM companies; set goals and track representation of women.
COLLABORATION (CONT.)

- Request STEM companies to designate a community liaison to promote community relations and opportunities for STEM careers, summer jobs and training programs for girls.
- Encourage companies to support women at mid-level in STEM fields to encourage them to stay (e.g., offer sensitivity training to men in STEM companies to help change the hyper-masculinized work culture).

Corporate Incentives:
- Require/incentivize companies to deliver on diversity in workplace hiring across gender, race and socioeconomic background and to operate and recruit within disenfranchised communities.
- Offer tax rebates or grants for companies that meet certain standards for inclusion of women/girls.
- Give public recognition, including awards, to corporations that effectively promote gender equality and fair pay in STEM careers.

MENTORS

Encourage educational institutions and corporations to provide mentorship programs in academic and professional settings that build confidence and strengthen professional skills.

NONPROFITS

Create time and convening space for collaboration and joint events with nonprofit organizations that are working to elevate women and girls’ leadership and participation in STEM.

COMMUNITY

- Organize city-sponsored events (e.g., hackathon to encourage girls and women in both leadership and STEM).
- Host an annual breakfast with the mayor, the mayor’s spouse and/or celebrities with young women to encourage leadership and consideration of STEM careers.
- Name week/month/day to recognize women in STEM.
- Create space for networking of individuals looking to make career transition into STEM/women looking to re-enter work force with STEM recruiters.
As a longtime leader in computer technology, IBM has measured baselines, set goals and has been tracking representation of women at all levels of its company.

The San Francisco Department on the Status of Women prioritizes and promotes STEM education for women and girls. The department is a model for how the General Recommendation to establish a permanent office on the status of women and girls makes it easier to act upon all other recommendations in this guide.

Harvey Mudd’s core curriculum is an academic boot camp in the STEM disciplines.

Laura Mather created Unitive, a hiring platform created to tackle unconscious bias in corporations, targeting gender differences in language and fostering inclusion in resumes and job descriptions.

Jo Boaler, Professor of Mathematics Education at the Stanford Graduate School of Education, is involved in promoting mathematics education reform, online math education and equitable mathematics classrooms.

Dev Boot Camp is a short-term, immersive bootcamp that transforms beginners into full-stack web developers in 19 weeks.

Girls Who Code is a national program that works to inspire, educate and equip girls with the computing skills to pursue 21st-century opportunities.

Symantec Corporation is educating corporations on the strategic advantages of gender diversity.

Level Playing Field Institute provides opportunities for girls to attend college courses over summer.

Hallandale Beach model of giving girls graduating high school a certification in technology.

Black Girls Code introduces computer coding lessons to young girls from underrepresented communities through workshops and after-school programs.

Girls Inc. works in partnership with Lockheed Martin to connect girls with female engineers through hands-on activities and mentorship opportunities. The Operation
SMART and Eureka! programs foster STEM educational and career paths for girls and young women ages 6-18. This successful partnership is a model that can be replicated by other companies committed to encouraging their employees to engage with girls.

If women and girls are not represented fully in STEM, an important opportunity for women’s equality will be lost in the next generation.
Articles, Books, Organizations, Videos

- **Million Women Mentors** - A major initiative that encourages girls and young women to enter and stay in STEM programs and careers.
- **Code: Debugging the Gender Gap** - Documentary film exposes the dearth of American female and minority software engineers and explores the reasons for this gender gap.
- **Stem Connector** - As a free service to the country, the STEMdaily® newsletter provides nearly 10,000 diverse thought leaders in STEM education with a daily newsletter that increases connectivity across the nation and reaches over a million people through social media.
- **Career Girls** - Videos of women mentors who talk about obstacles they have overcome as women in the workplace.
- **American Association of University Women study: Solving the Equation** - March 2015.
- **McKinsey Report: Unlocking the Potential of Women in the Workplace**
- **Unlocking Opportunity for African American Women and Girls** - Report from the National Women’s Law Center and the NAACP Legal Defense and Educational Fund, Inc.
- **Worldwide Women Website** - An online crowdfunding platform aiming to promote girls’ and women’s empowerment worldwide, in cities and rural areas, in both developing and developed countries.
- **WEPAN (Women in Engineering ProActive Network)** - A nonprofit educational organization founded in 1990 to be a catalyst for change to enhance the success of women in the engineering professions.
- **White House Council on Women and Girls Portal** - President Obama created this Council in 2009.
- **The Connectory Portal** - Makes the connections to STEM learning opportunities that inspire young people to explore, discover and create.
- **Women @ NASA** - A library of videos of women who work at NASA talking about themselves and their careers.
- **Society of Women Engineers (SWE)** - Dedicated to introducing local girls to engineering and the women who work in the field.
- **Tips for Encouraging Girls in STEM** - This tip sheet was created by Girls Inc. and provides best practices for how to encourage a girl to participate in STEM.
- **Afterschool Alliance** - Dedicated to providing resources that will help afterschool programs provide meaningful STEM learning experiences.
- **Solving the Equation: The Variables for Women’s Success in Engineering and Computing**
- A research report written by the AAUW.
- **How Cross-Sector Collaborations Are Advancing STEM Learning** - Paper sponsored by the Noyce Foundation examines 15 leading efforts to create STEM Learning Ecosystems. STEM Learning Ecosystems harness unique contributions of educators, policymakers, families and others in symbiosis toward a comprehensive vision of STEM learning for all children.
- **Global Fund for Women** - A champion for gender equality, standing up for women and girls to be strong, safe, powerful, and heard.

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<td>Establish a Department on the Status of Women, charge it with the collection of data on women and girls in STEM, and use data to formulate a plan of action to engage more women and girls in STEM.</td>
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<td>Dedicate a revenue stream to fund public STEM education.</td>
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<td>Amplify technology and engineering at the elementary level to make them as standard as science and math.</td>
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<td>4.</td>
<td>Designate a liaison for each STEM company and the community to communicate job opportunities, and designate a point person within municipal government to oversee corporate community connections.</td>
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<td>Incentivize companies to deliver on diversity in the workplace across gender, race and socioeconomic background.</td>
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