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Wood: Girls in STEM

# Girls in STEM

By: Elizabeth Wood



# CHANGE THE WORLD LIKE A GIRL

In recent years, progressive efforts inspiring girls to study science, technology, engineering, and math (known as STEM) have led to significant changes in the business industry. Regardless of these efforts, a large gender gap in the STEM workforce remains. This gender gap will continue to increase if we fail to pursue this movement in teaching and showing girls that they can change the world through STEM. Encouraging girls to pursue STEM will boost the economy, promote fresh perspectives, maintain workforce diversity, and create a source of inspiration for future generations.

## CHANGE THE STEREOTYPE

The common stereotype for those who study and work in STEM fields is represented when children are asked to draw a picture of a scientist or a mathematician. In some studies, it was observed that “girls were twice as likely to draw men as they were to draw women, while boys almost universally drew men, often in a lab coat.”<sup>1</sup> Part of the STEM gender gap comes from a lack of female role models for young girls to follow.

For many centuries, women throughout the world have had fewer opportunities to gain an education and were limited in which careers they could pursue. The majority of women were expected to be housewives and homemakers. This past inequality has heavily influenced the gender gap today by restricting the perception of what women should and should not do.

Women are also subject to self-consciousness stemming from their math and science classes. They often compare themselves to their male counterparts. Girls are told as soon as they start school that boys are better at math and science, and they believe it. This belief destroys hope in young girls and persuades them to choose the path of least resistance. Girls must look past the negative stereotypes

about their abilities and have a growth mindset where they believe intelligence is developed.<sup>2</sup>

As the younger generation becomes more exposed to women in STEM career fields, their eyes will be opened to the greater possibilities of what can be accomplished through the study and application of science and math.

## BOOST THE ECONOMY

Katherine Johnson, a famous NASA mathematician, once said, “We will always have STEM with us. Some things will drop out of the public eye and will go away, but there will always be science, engineering, and technology. And there will always, always be mathematics.”<sup>3</sup>

With technology changing so drastically every couple of years, there is no shortage of jobs in STEM fields. In U.S. News’ list of 100 Best Jobs in 2019, the top 20 are all STEM related.<sup>4</sup> This list compiles these jobs by considering work-life balance, job satisfaction, and pay—all good reasons to work in STEM.

A lighthearted quote puts into perspective exactly how STEM careers boost the economy and how careers using these skills will always be in demand for men and women alike. “Let’s be real: the only way to avoid seeing your job taken over by robots is to be the one who makes the robots.”<sup>5</sup>

Women make up half the world’s population; they also earn more college degrees than men as seen in Figure 1.<sup>6</sup> However, most women do not work professionally in STEM fields. Bank of America and Goldman Sachs have conducted studies that show “companies that employ more women consistently outperform their competitors.”<sup>7</sup> Thus, the story tells itself: companies have need of and thrive when they have greater amounts of diversity in employees.

## ENCOURAGE NEW PERSPECTIVES

Although many arguments about women in STEM push for greater gender equality in the workplace, women are also necessary to encourage new perspectives. Their unique experience and

personality traits help “make scientific innovations useful and, more importantly, safe.”<sup>8</sup> This is shown in two different examples. First, when seatbelts were invented, many of the considerations taken when designing the safety belt were centered on male physical attributes. Because this brand-new, potentially lifesaving innovation was developed in this way, it actually killed several women and children because of their differing body compositions and sizes.

Another example comes from recent complaints against Fitbit. In one of their newer products, Fitbit programmed the watch to enable women to track their periods for up to ten days. Based on science, this claim would make sense. However, any woman would know that the length of a menstrual cycle is rarely the same every time and could possibly be longer than ten days. Limiting the watch’s period tracking ability was not the right decision for Fitbit to make and could have easily been prevented by asking a member of the opposite sex.<sup>9</sup>

Without additional perspectives from women in product development and testing, companies will end up missing the mark. “We know from research that diverse teams are more effective at problem solving when different voices, viewpoints, expertise and life experiences are brought to bear.”<sup>10</sup> Encouraging and promoting gender equality among company recruiters will foster new perspectives that will potentially save lives and the reputations of companies.

### MAINTAINING WORKFORCE DIVERSITY

Almost as important as hiring women into the STEM workforce is the necessary step of keeping them there. Professor James Stirling, PhD at Provost of Imperial College London said, “If we want more high-quality scientists, I am absolutely convinced that we will find them amongst the female population.”<sup>11</sup> By including more women in STEM, a higher quality and a higher standard will be expected by employers. Those standards will need to be met by the high-quality scientists, technologists, engineers, and mathematicians that they hire.

Encouraging women to stay in their learned fields requires a company’s most earnest efforts. Many inequalities, such as unequal pay, sexism, available promotions, and kinds of assigned responsibilities, can chase women away from continuing their careers. These inequalities may also lead to burnout, frustration, and a greater likelihood of quitting STEM altogether among female

professionals.<sup>12</sup> Treating men and women equally will help companies in the long run by retaining their employees and rewarding their longevity.

In a study completed by two sociologists, the results showed that “more than 40% of women with full-time jobs in science leave the sector or go part time after having their first child.”<sup>13</sup> This study also showed that more mothers left their jobs in STEM fields after becoming a parent than fathers. This trend is also contributing to the gender gap and may be prevented in the future if more companies would accommodate new mothers by offering generous paid maternity leave, opportunities to work from home, in-house childcare, or part-time options.

If women are to have a chance at equality in STEM workplaces, they must not be punished for having children. Although some may choose to leave in order to care for children, the industry should not chase them away by enforcing impossible expectations and offering little flexibility.

### CHANGE THE WORLD FOR THE FUTURE

STEM majors have the potential to use their technical knowledge to better the world around them and create monumental change for the future. The STEM strategy lead for Girl Scouts of the USA, Suzanne Harper, said, “girls are more interested in pursuing STEM when they understand how they can use it to help others.”<sup>14</sup> Women are often naturally more empathetic and caring than men so having the desire to be a force for good in the world comes as no surprise. However, many girls do not understand the good they can do with STEM.

The times are changing though as more women are choosing STEM and are speaking out about their experiences. One example is found in the book *Hidden Figures*, written by Margot Lee Shetterly in 2016. This nonfiction book was also adapted into a movie that received a 93% rating on Rotten Tomatoes. The main storyline is about three African American women who helped NASA during the Space Race of 1961 by correctly computing a safe landing of the Friendship 7. Not only were they persecuted for their gender but also for their race. However, they pushed through and eventually changed their employer’s hearts and the history of space travel. This movie also brought to light positive role models for women and girls today who desire to make a difference through STEM.

The book *Hidden Figures* states, “There was virtually no aspect of twentieth-century defense technology that had not been touched by the hands and minds of female mathematicians.”<sup>15</sup> By studying STEM, all girls are given the tools they need to change the world, one woman at a time.

The first step in attracting more girls to study STEM fields is to change the stereotypical view of a scientist/mathematician from a nerdy guy in a lab coat to a more diverse population with greater role models for both boys and girls. This effort in changing current stereotypes is essential for the future. Without attracting, hiring, and keeping girls in STEM, the economy will suffer, new innovative ideas will be limited to a non-diverse workforce, and less change in the world will occur. Sacrifices like this cannot be afforded in today’s world. Let’s change the world like a girl! ♣

*Elizabeth Wood is an Applied Statistics major at Brigham Young University. She is a firm believer that math and data can solve real-world problems. She has also noticed a lack of women in her field and is calling for a change. She can be reached at ejwood41@gmail.com.*

*Illustrations by Allison Havey*

## Notes

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