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Sophie Rhodes

Augustana College, Rock Island Illinois

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Sophie Rhodes

The Inequalities Women Face In STEM: From Their Education To The Workplace

WGSS-130-01 Intro to Gender Studies

Dr. Emily Cranford

Fall Semester 2020

Women in STEM have a long history of not being a part of it. Since the 1920s, women have had to deal with sexism in the male-dominated fields of science, technology, engineering, and mathematics--also known as STEM. When comparing the progress women have made in these fields, it is noticeable just how inefficient the education system was with the inclusion of young girls in math and science. This sexism carries into the workplace by exemplifying the shrinking yet sustained wage gap. This wage gap becomes even larger when women of color are incorporated into this community. Despite increasing numbers of women in the STEM community, the sexism and prejudice women have faced within their education and workplace is still a part of this ever-changing society that favors men within this field.

Women have had a long battle with inclusion in STEM starting with their education as well as being discouraged from equal opportunities from the 1920s to today. The interest and exposure to these fields usually intensifies in college when majors and minors become more specific. Although men and women are roughly exposed to the same amount of math and science in primary and secondary school, it is apparent that there is an unbalance in the men and women who go to college to pursue a STEM degree. When entering these fields of study, it was, and still is today, common to find prejudices toward women considering the oppression of women in mathematics and science in the classroom from professors and peers. Noticing this pattern, in the 1960s, "Some colleges even set higher standards for women or instituted quotas to maintain male dominance in medicine, dentistry, law, and many graduate schools" (Koch, 2014 p. 74).

In elementary, middle, and high school, boys and girls are roughly equally exposed to the same amount of math and science. However, as children's minds grow and each child finds their academic strengths and weaknesses, the likelihood of girls actively participating in these subjects goes down significantly as their male peers take ambitious strides in these subjects,

overshadowing the opportunities for young girls to put in their two cents in during these classes. According to a 2010 report by the American Association of University Women (AAUW), leaving high school, about the same amount of boys and girls are prepared to enter college intending to pursue majors in science and engineering. During the first year of college, men are much more likely than women to stay in these majors. By the time of graduation, men outnumber women in every field of engineering and science such as physics and computer science. This results in only 20 percent of women making up bachelor's degrees in these fields. This percentage proceeds to drop even further as women enter graduate school and eventually the workforce. (Thompson, 2010 pg. 2). Women have had the odds of being in a STEM field stacked up against them for the past 80 years. Through being discouraged by society and higher education institutions, by the end of the 1960s, women only represented 1% of engineers, 2% of dentists, and 7% of physicians (Koch, 2014 p. 74).

Including all genders equally in the classroom is essential in order to make the small percentage of women in these male-dominated fields increase. A research study shows that kids can start learning foundational engineering and coding skills at ages 4-7. Children start forming gender groups at around ages 2-3 (Sullivan et al., 2017). By starting children on the same playing field of teaching them math and science, what would be the societal norm of boys veering towards while girls drifting away, would be much less likely to happen. Another way to start children on a similar base of science, technology, engineering, and mathematics would be to avoid teaching methods that require competition. Many programs and service tools focus on competition to see who is best at what. Making it impossible for everyone to feel like they gained valuable information if they lost something whether that be in the classroom or a robotics competition.

Society discourages young girls from thriving in math and science fields. One finding shows that parents and teachers who tell young girls that their intelligence can grow with learning and experience, they are more likely to do better on tests and negate the negative stereotypes that mathematics is only for men (Thompson, 2010 pg. 2). This shows that In the 1960s, women's salaries declined while their male counterparts remained at their current pay (Koch 2014, p. 35).

The wage gap in STEM in America has been a problem since the mid-1900s when women entering their respective STEM fields were becoming more common. This point in history was extremely difficult for women in STEM as the wage gap has never been larger as “pay differed as much as 60% in the 1950s and 1960s” (Collins, 209). Women currently outnumber men in the general workforce with women making up 52% while men only make up 48% (Koch et al., 2011). However, women only make up a quarter of the STEM workforce (Tulshyan, 2016). According to data given by the Economics and Statistics Association, women in STEM make 14% less than their male counterparts (Writers et al 2020). In light of this statistic, this is the smallest the gender wage gap has ever been in STEM, “Women in the STEM workforce earn 33% more than women in non-STEM careers” (Koch 72). Though the wage gap is shrinking, it has still not closed. Society enforces the inequality of men and women by not paying each gender the same salary even though both are doing the same job.

There are many actions to be taken to close, or at least shrink, the gender wage gap in STEM. Some of which are more difficult to achieve than others. A large contributing factor of why the wage gap is not closed or shrinking at any noticeable rate is simply because it is simply expensive to employers. The Harvard Business Review says, “By paying more money to their employees, it can put companies in the red. Managers need to establish a list of defined priorities

around closing the gender pay gap. This list could include capping raises to individual employees and maintaining pay differences based on job performance and responsibilities” (Anderson et al., 2019). Another factor of the gap is overworking. Many employers expect their employees to be available for work 24/7. Employers relate this to loyalty to the company. According to an article published by the American Sociological Association, “The effect of the diffusion of overwork on trends in the gender gap in wages depends, logically, on two factors: changes in the relative proportions of men and women who overwork, and changed in the wage returns to overwork relative to full- or part-time employment” (Cha 459).

Women of color are facing brutal fights to be recognized within their STEM careers. In addition to being a woman in a male-dominated field, women of different ethnicities face more inequalities and oppression than white women in STEM. The idea of Black Feminism fits well into exemplifying this particular type of oppression. In “The Combahee River Statement”, author Keeanga-Yamahatta Taylor explains in the 1977 article that women who do not define themselves as Black feminists, all experienced sexual oppression as a constant factor in day-to-day existence (Taylor et al 17). Though women only make up around a quarter of the 5 million technology-related jobs, women of color remain in the single digits. Furthermore, a study shows that young black girls show more interest in STEM subjects and careers more than their white counterparts (Parker et al). Starting in elementary school, girls that are encouraged in math and science build the confidence to pursue it after high school but tend to change their majors early in the process of earning their degree. A 2006 statistic shows, “Only 1.6%, 0.4%, 1.1%, and 2.3% of African American females initially choose physical science, mathematics/statistics, computer sciences, or engineering, respectively, as a major” (Hill et al., 2010).

Many changes need to be made to fix this inequality yet very few have been taken into practice. It is essential that the barriers put up to exclude women in these fields have to be knocked down, but are reluctant to do so by many companies. Employers need to look further than the surface of what traditionally makes a “good candidate” for a certain job. They also need to provide sustainable training for their employees of color. Oftentimes, women of color leave their positions in STEM after around six months because of the exclusionary work environment and inadequate training (Parker et al). Additionally, there need to be changes made in workplace culture. Marietta Davis wrote for The Huffington Post, “Acceptance into organizational networks is important to long-term advancement. Being part of a network increases information and knowledge, increasing the chances of advancement in the STEM disciplines. African American women are often excluded from the networks and isolated in the work environment” (Parker et al). It is not just African American women that are being excluded from this workforce, but all other races and ethnicities as well are being excluded from STEM.

Even though women of color are not given near the credit they deserve for their careers in men-dominated fields, it is important to recognize what these women have accomplished so far. According to the American Association for the Advancement of Science (AAAS), “In 2006, women made up about 58 percent of bachelor degrees associated in the STEM fields... Asian Americans/Pacific Islanders make up 9.7 percent versus 6.7 percent” (Thompson 2010, p.2). This statistic proves to recognize that women are making great strides toward equality yet much more changes need to be made starting with inclusion.

To restate the main ideas, it is important to teach young people, especially girls, that the stereotypes put forth by history and society are wrong. Math and science do not just belong to boys and the arts and humanities do not just belong to girls; as they belong to all who are willing

to learn about these subjects. By doing so, we affect aspects of each new generation how to effectively participate in fields that their gender is not normally a part of. These academic subjects collectively belong to the human race, not aspects of the human race. Despite the rise of women in the STEM community, the sexism and prejudice women have faced within their education and workplace is still a part of this ever-changing society that favors the men within this field.

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