



engineering possibilities

content editor kate janda

A study published in the Psychology of Women Quarterly in March 2016 found that women who study natural sciences encounter more sexual harassment, gender discrimination, and sexism in general compared to women who study social sciences. In a study published in Nature (a multidisciplinary scientific journal) that focused on researchers, women had to do 2.5 times the work of their male colleagues to receive the same peer review score for fellowships after they received their doctorates. Additionally, science faculty were more likely to hire men for lab manager positions when the male and female candidates offered the exact same credentials, according to a study discussed in the Proceedings of the National Academy of Sciences of the United States of America. So what drives women away from STEM (Science, Technology, Engineering, and Mathematics) fields?

According to the aforementioned studies, it's the extra energy that women have to put in to get the same recognition as their male counterparts. It's the cultural-social misrepresentation of women that labels them as the "weaker sex." It's that women bring things to the table that some men may not consider or traditionally value, so they don't receive the same level of respect.

Due to these factors, women often are underrepresented in engineering and other STEM fields, both in schools and in professional engineering. According to a study by Pew Research Social Trends, "Women continue to lag far behind men in the STEM industries of science, technology, engineering and math. As of 2010, they made up 13% of employed engineers." Furthermore, according to a Pew Research Study in January 2015, among undergraduates who were enrolled in engineering programs, only 18.6% were women

Once women enter a STEM field, they face a significant wage gap. According to a National Science Board Science and Engineering Report of 2013, the median annual salary for highest-degree-holding women working full-time in science and engineering fields was \$55,000, while their male counterparts earned \$80,000. The widely-recognized wage gap is quoted to be

as high as 80%, yet this report indicates that women working in science and engineering only make 69% compared to their male counterparts.

An article from the Journal Of Engineering Education reveals that because men are often associated with leadership, and women in the sciences face lower wages/gender discrimination, it is even more difficult for women to break through to higher roles. BSM Engineering teacher and department head Kirsten Hoogenakker has seen this struggle with one of her mentors. "I worked at EcoLab...it's not like there weren't women who worked there, but it was really hard for them to break through into the executive levels. One of my [former] bosses and mentors has really struggled in terms of navigating salary and finding a sense of equality, not only with her pay, but also with her status constantly being questioned. And she's like: 'No, I promise, I have a doctorate; we are at the same place here," Hoogenakker said.

According to the same Journal of Engineering Education article, communication between men and women in engineering fields is often less effective due to gender discrimination. This creates a power imbalances and can give women a false sense of inferiority. And at the end of the day, the skill sets that women possess are irrelevant in a system that assumes gender conflicts with professional strengths and intelligence.

Junior Sophie Herrmann, who has been in BSM's engineering program since she was a sophomore, sees the obstacles that women in engineering face every day from the experiences of her older sister Emily, a 2012 BSM graduate who is now pursuing a degree in industrial engineering. "As much progress as has been made, it's still a very heavily male-dominated field. It's pretty obvious that there's still a wide disparity, [and] I think it starts really

Empowering young girls to explore STEM fields is imperative to closing the gender gap in the sciences.

young—girls are not encouraged to get into those STEM programs that are heavy on math and science. You're very aware from a young age that it's going to be an uphill battle," Herrmann said.

Further, the confidence gap is arguably the most powerful reason why there are few women in engineering and science fields. According to an article entitled Engineering by the Numbers, "because engineering is a traditionally male-dominated field, women may be less confident about their abilities, even when performing equally." That feeling transcends age and experience for many women. Herrmann recounts doubting her STEM abilities as early as seventh grade when she was placed on the honors/ advanced math track. "I spent hours for an entire month telling my mom that I was in the wrong place. I asked her to go talk to the teacher and make sure that I was in the right math. I think this is an experience that a lot of girls have when going into a field like engineering... when you realize that you're in the minority and that what you're doing is not what's expected of you, it's really easy to get discouraged and think that you don't belong. There's this overall feeling that you're not good enough, and a lot of talk that women in engineering are given handouts, or a leg up, don't deserve to be there, and aren't a part of the conversation a lot of the time," Herrmann said.

To understand why these gender stereotypes still exist, many look to the not-so-distant past when a woman's role in society consisted of raising a family and keeping a household. Although many college programs now push for more women in engineering, the gap is closing very slowly. "It's a cultural-social thing, and it's systemic. The first step is recognizing

"Don't let the boys boss you around. I think that's the tendency, but be pushy about it. Be bossy. In the end, that's what is going to make the difference; is to show the guys that you have it, you have what it takes, and to be confident about it."

—Ms. Kirsten Hoogenakker

that it's there, and we know that women are disproportionately represented in engineering. Colleges are pushing hard to get scholarships for girls, to make sure that their percentages are a little higher... [while] It's nice to be able to brag and say that we have more girls in our engineering program [at BSM] than most colleges, it's still difficult," Hoogenakker said.

Though women still face the struggle of feeling underrepresented in a field as vast as engineering, they often find comfort by banding together with other women in similar situations. "[For women in engineering], I think that there's a sense of struggle, but then there's also a bond that comes with that... We like to support each other. And I think we recognize: oh, you're here, and you've been through the same turning mill that I've been through. Now let's get through this together," Hoogenakker said.

Even seemingly small empowerments, like having Ms. Hoogenakker head BSM's engineering department, draws more girls to the engineering program and encourages those already in it. "Since there's such a small group of female engineers, you have a really tight bond with those women, and you're all looking out for one another... that's part of why I'm really happy that we have a woman heading our engineering program here; that's been huge for me and I know the same for other girls in the program," Herrmann said.

As far as girls who are just starting in engineering programs or considering joining, Herrmann emphasizes the importance of believing in your own abilities. "[My advice] is to find your confidence. Ground yourself in that, ground yourself in knowing that you are good enough. You deserve to be there, you deserve to be part of the conversation, and that you're providing something unique and special. Know that you are good enough at math and science; just because you're a woman doesn't mean that you're walking in with a disadvantage," Herrmann said.

Read the rest of the story at bsmknighterrant.org.

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social media manager molly keady

In 2015, the U.S. Women's National Soccer Team won its third World Cup Title and each player took home two million dollars of prize money. According to FIFA (Fédération Internationale de Football Association), the German Men's National Soccer Team players were each paid thirty-five million dollars for winning the exact same title just a year prior to the U.S. Women's Team. There is currently a drastic difference in how both men and women are paid when it comes to professional sports, and similar disparities are present at the high school level. Although there are many factors that determine wages, the recurring theme of women being discredited for their athletic accomplishments is not a new issue in our society.

In 1972, in an attempt to combat gender inequality, a federal law was mandated to ensure the equality of men and women in professional, college, and high-school sports. While the Education Amendments Act, better known as Title IX, still applies to all educational institutions that receive federal funds, there are still many challenges that women face when it comes to competitive sports in general.

One of the major contributing factors of how women are treated in sports rests on the shoulders of the coach. Senior track and field captain, Amira Carter, has been playing sports throughout her BSM career including soccer, basketball, and track and field. As she approaches her final BSM track season, Carter reconizes the differences in the coaching styles when it comes to directing women in sports. "I've noticed] that coaches have the tendency to pay attention more to those who perform the best at the beginning of the season, and typically, those are the guys. When more attention is automatically given to the guy's team, the whole team is overall pretty divided," Carter said.

Current coach of the Junior Varsity girls' soccer team and junior high English teacher Ms. Callianne Olson has grown up playing soccer for over 17 years and has been on both sides of being a female athlete and coaching them. "[Coaches] either treat you like they are super afraid to hurt your feelings or they don't understand how to communicate with girls. One thing that I found from coaching girls and being a female player is you always have to take into account what is happening outside of the sport. Guys can have an easier time leaving things off the field, but girls do not. And that doesn't make it better or worse, I think that that can make a team so much stronger. But [coaches] have to be able to approach them the right way," Olson said.

Not all athletes experience an extreme difference between guy's and girl's sports at the high school level. Sophomore Maya Argenta has never personally noticed a difference between the two. "[In swimming]



Girl's swim sent five swimmers to state this year and the team placed fifteeth overall in the state.

ke photo by morgan williams

BSM aims to promote equality, but female athletes still face daily sexism.

we all use the same pool and have the same coach, so overall, it's pretty balanced," Argenta said.

Although there are divisions between male and female athletics in other sports, many efforts continue to even out the playing field. Not only is it vital for schools and the nation to encourage girls to play sports, but other issues must be addressed, including the handful of women as sports columnists and commentators. According to Talkers Magazine 2013, women make up just one percent of sports commentators on major cable broadcasting channels. By having more established female roles promoted in both sports and sports commentary, there will be more role models and inspirations for young female athletes who hope to advance in these careers.

In an attempt to address unequal treatment at the school level, Carter has learned how to overcome these issues mentally so she can focus on the season, despite the lack of attention she may receive. "I figure that whatever attention [coaches] give me is crucial. Although I may not receive as many corrections as the guys, I take them anyways. I try not to let it get under my skin, but focus on what I can do to be my very best throughout the season," Carter said.

Similarly, in order for women to participate, sports must be promoted in an engaging way beginning at a young age. "I don't know if it's more recently, but I've been seeing more stigma around girls' sports. So I think that it's on schools and clubs to promote the inclusiveness of girls'

sports." Olson said.

Within the BSM community, it is essential to listen to girls' perspectives when it comes to their treatment in athletics. Some students believe that girls could be given the same attention if more female coaches were hired. "More coaching staff would be appreciated. This allows coaches the ability to talk to each individual athlete and help them become a better athlete at the beginning of the season, rather than the student just trying to adapt in the middle of the season," Carter said.

It is clear that sports may not provide equal opportunities for women worldwide; however, it is vital for our society to demand equal representation of women in sports and to take steps in to counteract gender inequality at a national and local level.

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