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Women in STEM

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With increased community-wide efforts encouraging young women to pursue STEM careers, society has come a long way in providing women equal opportunities to achieve their goals. In fact, women now make up 53% of STEM graduates, a number significantly higher than it once was (Fry et al., 2021). However, only 27% end up working in STEM-related fields (Martinez and Christnacht, 2021). To understand these discrepancies and get a first-hand account of an inspiring female scientist who is passionate about fostering an equitable climate within the STEM community, we interviewed Dr. Deborah Yoder-Himes.

Dr. Yoder-Himes completed her Bachelor of Science at Purdue and pursued further graduate studies at Michigan State University's Center for Microbial Ecology where she was involved in groundbreaking work studying disease causing microbial pathogens. Her work resulted in a highly influential publication on transcriptomics in bacteria, which earned her a postdoctoral fellowship at Harvard Medical School. There, she was able to provide her expertise in containing a bacterial outbreak at the children's hospital.

Dr. Yoder-Himes has since found her home in Louisville (UofL). Her lab is currently involved in projects including:

- Investigating microbial interactions and pathogen evolution
- Identifying new treatments for ear infection in children

For more information, please visit https://yoderhimeslab.weebly.com/

Dr. Yoder-Himes shared that through most of her higher education she had never felt that she was in the minority; there were plenty of women in her classes. However, it's upon close inspection that the subtleties of gender difference in academia become apparent. As Dr. Yoder-Himes stated, she was "in a male dominated world, and didn't even realize it." Many of her superiors and faculty mentors throughout her career have been male. During her time at Harvard, she was the only female in a lab of 7 other post-docs. While these may be unique experiences that cannot necessarily be be extrapolated across all of STEM, her experiences still warrant a deeper analysis.

Are these observations purely a matter of not receiving many qualified female applications at the right time? Or does it signify a deeper problem where females have systematically faced hurdles in accessing opportunities, and, therefore, have a more difficult time climbing up the career ladder?

From a general standpoint, there are consistent discrepancies in research funding between male and female counterparts. In fact, only 30-40% of NIH grants have women as principal investigators (Safdar et al., 2021). More women are expected/asked to serve on committees, taking time away from conducting research. Statistics aside, it can be difficult to know if an individual was truly discriminated against, or simply not qualified. Whether one's life experiences would have been different if they were the opposite gender delves into the theoretical and can be difficult to quantify. Yet, it is a question that often creeps up considering the discrepancies surrounding us.

One area that Dr. Yoder-Himes feels the influence of gender is in how she speaks and carries herself. There seems to be unspoken restrictions on how vocal a female can be without seeming arrogant or conceited. There have been many moments where Dr. Yoder-Himes has personally had to think twice about her authority in necessary situations (such as when a student fails to follow the COVID mask mandate) -- a problem she feels male professors often don't have. In fact, a site on gendered language in teaching reviews illustrates that students perceive female faculty differently than their male counterparts. The data on this site shows harsher phrasings used in female faculty evaluations as opposed to male faculty evaluations (Schmidt, 2015).

Research from the American Association for University Women shows that both men and women tend to associate STEM disciplines with men rather than women. This illustrates a systemic problem: an implicit bias society has ingrained in all of us. This unconscious bias is set to change in the future with women in STEM fields on the rise, but work must be done systematically to truly see this change within our lifetimes. Some actionable first steps Dr. Yoder-Himes has suggested include reviewing salaries of male and female faculty holding equal positions and bringing up those who may have been unfairly left behind as well as ensuring male and female faculty are doing equal service and teaching work.

As for those female students aspiring for a STEM career, Dr. Yoder-Himes has one piece of advice: Go for it! Be aware of microaggressions, stand up for yourself, and be selective because you are every bit capable.

REFERENCES

Fry, R., Kennedy, B., & Funk, C. (2021). STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity. *Pew Research Center*. https://www.pewresearch.org/science/2021/04/01/stem-jobs-see-uneven-progress-in-increasing-gender-racial-and-ethnic-diversity/

Martinez, A., & Christnacht, C. (2021). *Women Making Gains in STEM Occupations but Still Underrepresented*. The United States Census Bureau. https://www.census.gov/library/stories/2021/01/women-making-gains-in-stem-occupations-but-still-underrepresented.html

Safdar, B., Naveed, S., Chaudhary, A., Saboor, S., Zeshan, M., & Khosa, F. (2021). Gender Disparity in Grants and Awards at the National Institute of Health. *Cureus*, 13(4), e14644. https://doi.org/10.7759/cureus.14644

Schmidt, B. (2015). Gendered language in teacher reviews. *Gendered Language in Teaching Evaluations*. Retrieved 2022, from https://benschmidt.org/profGender