Diversity in the Field of STEM

Science, technology, engineering, and mathematics contribute to America's continued global prominence and influence. It can range from the development of weapons of mass destruction to improvements to the standard of living. People of color, especially women of color, have been grossly underrepresented in STEM fields. Therefore, I am highlighting Monique S. Ross, an intelligent, first-rate, and accomplished engineer. She is an assistant professor of Engineering Education at Florida International University. As a black, female, STEM professional, she has a voice that should be heard. To improve the didactic practices that push women and minorities towards the pursuit of degrees in computer-related fields, Ross aims to use her research to broaden the participation within STEM fields, specifically computer science by exploring the following topics of race, gender, identity, and discipline-based education research.

Undoubtedly, her investigations of engineering professionals' identities and their experiences throughout life are vital to advancing the STEM field. In many of her writings, she points to a school of thought by the name of ‘Identity Theory’, which is a broad term used to group certain philosophies or theories about the relationship of the mind and body. She defines it as, “Theoretical framework utilized for understanding how engineering industry culture fits with how these women see themselves and feel like they belong or do not belong in engineering”. She advocates for broadening the current use of the Identity Theory under the lens of a black woman, believing that this would yield further diversity. In January of 2021, Ross and her colleagues, James L. Huff and Allison Godwin conducted a study. Its purpose was to recognize and discover the identity development and workplace resilience of black women within the engineering industry. It intended to look at what encouraged them to continue being in the engineering

workforce for a prolonged time. Through 90-minute interviews, nine black women with 10 years or more of experience in the engineering industry discussed their encounters, backgrounds, and paths into engineering. This study shows that engineering identity development doesn't contribute to the retention of black women in the workplace, but the "confluence of race, gender, and role identity aids in developing a resilient engineering identity".

Ross also writes more conventionally, such as discipline-based articles. Among her key writings are those on student-mentor relationships in STEM and their impact on STEM identity development and their sustainability in STEM; those on the examination of high-achieving under-deserved students based on their gender, field, and school year showed importance. Simply, it was found that when comparing the constructs of men and women, computing fields, and high school students, female high-school students had less of a computing identity.

In brief, the progression of her race, gender, and identity and discipline-based research is an admirable approach to her goal. She stands to change this field and pave the way for many women after her. Ross shows how far women have come in the field of STEM, and her work shows a great journey ahead.