

\*Urias, G., \*Guzman, D., \*Mayorga, M., & **Ihorn, S.** (2020). Self-efficacy in computer science: The role of gender and race. Poster presented at the annual meeting of the American Psychological Association, Virtual Conference.

Although the Computer Science (CS) field has taken steps to increase the numbers of female, Black, Latinx, and Native American computer scientists, it continues to be one of the least diverse of the STEM fields (Cohoon & Aspray, 2016). Retention of underrepresented minority (URM) and female students has been an ongoing problem in CS programs at universities across the United States (Kulkarni et al., 2018). Self-efficacy is an individual's belief in their ability to perform behaviors necessary in a particular situation (Creer & Wigal, 2016), and is an important component of academic success and perseverance. The present study examines two facets of self-efficacy in students taking introductory CS courses at a diverse, urban public university.

For the present study, 83 students enrolled in introductory Computer Science courses completed an online Qualtrics survey at the beginning of the semester. Participants included 55 men and 28 women, 58 non-URM students and 25 URM students. The survey included items from the Self-Efficacy subscale of the Motivated Strategies for Learning Questionnaire (MSLQ-SE; Pintrich et al., 1991), the Computer Science Self-Efficacy Scale (CPSES; Ramalingan et al., 1998), and basic demographic questions. No significant differences were found between men and women, or between URM and non-URM students on the MSLQ-SE. However, there were significant differences found between men and women ( $t(81) = 1.70, p < .05$ ), as well as URM and non-URM students ( $t(81) = 2.57, p < .05$ ) on the CPSES. Women and URM students reported similar levels of general learning self-efficacy as men and non-URM students in their computer science courses, but reported lower levels of computer science self-efficacy.

The present study found that although women and URM students reported similar levels of confidence in their ability to do well in their computer science courses compared to men and non-URM students, they reported comparatively less confidence in their ability to perform the specific computer science tasks that are integral to their success. Previous research has shown that underrepresented students feel a stronger sense of community in academic programs with a higher proportion of minorities, which results in higher self-efficacy (Beason, 2018). Differences in representation can create a sense of confidence among members of well-represented groups, while creating a sense of self-doubt, or lowered self-efficacy, for members of groups that are not as well-represented. The lack of representation in CS courses may contribute to lowered CS self-efficacy in female and URM students, even when they have otherwise high levels of general learning self-efficacy, which hinders the academic success of these students and may contribute to inequalities in the field. Directions for future research could include determination of which components of educational programs and courses most strongly impact female and URM students' level of self-efficacy, and whether changes to programs and courses can increase the computer science self-efficacy of these students. Expanded discussion, limitations, and implications for educational practice will be presented.