

2024: VOLUME 12 ISSUE 4

Editorial

It is my pleasure to present issue 12.4 of Advances in Engineering Education. This issue includes four manuscripts that explore implementing soft robotics in the classroom, a four week-long intervention to mitigate stereotype threat, the introduction of a new learning framework, and application of improvisation activities in research experiences for undergraduates. Siggelkoe, Walsh, and Golecki explore the development and implementation of a pioneering soft robotics research lab at a community college. The study highlights the potential of soft robotics to create diverse, interdisciplinary teams in engineering and demonstrates the success of such programs in enhancing student skills, confidence, and interest in STEM fields. Picho-Kiroga et al., investigate the effectiveness of a four-week metacognitive intervention aimed at improving performance judgments among Black engineering students vulnerable to stereotype threat. The findings show that the intervention significantly reduced students' tendency to underestimate their performance, eliminating the negative impact of this bias on their academic outcomes. Grigg and Verleger introduce the iLEARN framework, designed to offer a reproducible and flexible structure for flipped classroom environments, addressing a significant gap in educational design. Through student surveys across two semesters, the study demonstrates that the iLEARN framework effectively guides learning and supports confidence in course outcomes, regardless of varied implementation styles by instructors. Xia et al show the integration of improvisation (improv) into a summer Research Experiences for Undergraduates (REU) program to assess its impact on undergraduate engineering students' professional development. Results indicate that incorporating improv significantly enhanced students' communication skills, growth mindset, and collaborative abilities, though it did not notably affect creativity, suggesting that improv can be a valuable tool for improving various aspects of engineering education.