The Interplay of Supplemental Instruction and Mathematics Emporium in Improving Students’ Learning: A Case Study of a Three-week Intervention Boot Camp

Melisa Hendrata, California State University, Los Angeles
Eyob Demeke, California State University, Los Angeles
Suzanne McEvoy, California State University, Los Angeles

Research shows that roughly a third of postsecondary students are considered underprepared for college-level mathematics courses (Chen & Simone, 2016). Although developmental mathematics education is supposed to aid students in their subsequent college-level mathematics courses, unfortunately, a high percentage of these students fail to complete their General Education (GE) mathematics course. In this article, we present a mathematics boot camp model that strategically incorporates lecture, supplemental instruction, and mathematics emporium. As a case study, we implemented this model for three weeks with 95 undergraduate student participants. We found that 65% of Boot Camp participants made significant gains in their understanding of fundamental topics in intermediate algebra and demonstrated readiness for college-level mathematics. Boot Camp students’ responses on a pre/post mathematics anxiety/mindset survey also suggested that they were more likely to have a growth mindset and less mathematics anxiety after the boot camp intervention. Moreover, Boot Camp students’ overall performance in the subsequent college-level GE mathematics courses was comparable to that of non-Boot Camp students. Our analysis shows that this boot camp model provides an alternative, faster track for students to complete their developmental mathematics, and, by extension, their GE mathematics requirement.

developmental mathematics, mathematics boot camp, mathematics emporium model, supplemental instruction

Melisa Hendrata is a professor of mathematics at California State University, Los Angeles, her undergraduate alma mater, where she also served as the Supplemental Instruction Coordinator. She received her PhD in applied mathematics from University of California, Santa Barbara. Her research areas include mathematical biology and mathematics education.

Eyob Demeke is an assistant professor of mathematics at California State University, Los Angeles. He studied mathematics and philosophy at a small liberal arts college, Westminster College in Fulton, Missouri. In addition to mathematics and thinking about students’ learning of mathematics, he enjoys playing ping-pong.
Suzanne McEvoy is the Director of Smart Start for Student Success at California State University, Los Angeles, which housed both the SI Program and Boot Camp. She earned her PhD at Claremont Graduate University and has worked on the California State University campus for 28 years, designing and implementing various academic support programs.