Two years of mentorship in Culturally Adaptive Pathways to Success

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Abstract

Introduction.

With support from NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), the Culturally Adaptive Pathway to Success (CAPS) program aims to build an inclusive pathway to accelerate graduation for academically talented, low-income students in Engineering and Computer Science majors at Cal State LA. The campus context primarily serves underrepresented and economically disadvantaged students in the Los Angeles area. The student body demographics are such that 63% are underrepresented minority (URM) students; 60% are first-generation college students; and 70% of the students are Pell grant eligible and need to work for more than 20 hours per week to support themselves. Within the College of Engineering, Computer Science, and Technology, the average graduation rates (since 2007) are: 4 years: 4.1%, 5 years: 23.1%, and 6 years: 40.1%. The CAPS program seeks to improve on these levels of student achievement by scaffolding student development with multiple supports.

The CAPS program aims to develop social and career competence in our students via three integrated interventions: (1) Mentor+, an advising strategy that trains mentors to engage with students in relation to their academic work, and the connections between work and community. For example, in 2020 the CAPS program developed an online growth mindset training for faculty mentors. This online course established definitions, used active learning techniques to have mentors assess their own mindsets, provided evidence that students perform better when exposed to growth mindsets and that such exposure has been shown to help reduce achievement gaps for underrepresented students , and finally provided examples and practice opportunities in communicating growth mindsets to students. (2) Second CAPS established peer cohorts, providing a structure for social support among students and training models of peer mentorship (3) Finally, CAPS structures professional development from faculty who have been trained to support students with a holistic understanding of the antecedents of college success. To ensure success of these interventions, the CAPS program places great emphasis on developing culturally responsive advisement methods and training faculty mentors to facilitate creating a culture of culturally adaptive advising.

Methods.

The CAPS program recruited 2 consecutive cohorts of scholars. In total, there are 24 scholars (19 underrepresented minority, 8 women) across civil engineering, computer science, electrical engineering, and mechanical engineering. The success of the CAPS program will ultimately be determined by the improved graduation rates of the involved scholars, with measures of professional identity and GPA serving as intermediate guideposts. To assess these metrics, both qualitative and quantitative data collections occurred. Online surveys were administered to both cohorts of CAPS scholars, assessing the impact of the CAPS program, engineering/computer science identity, and career plans. A second group of students who are not CAPS scholars – and matched on the academic qualifications that made students eligible for the CAPS scholarship, but not financial need – were recruited for the purpose of comparison in regards to the engineering/computer science identity and career plans.

Results.

CAPS students are progressing faster than non-CAPS students academically. 85% of scholars were retained at through Summer 2020 (2 became academically ineligible, and 2 transferred to different universities). Further, 100% of retained scholars are expected to achieve 5 year graduation. 30% of the first cohort are expected to achieve 4 year graduation. 50% of the second cohort are expected to achieve 4 year graduation. This is compared to average graduation rates of 4% achieving 4 year graduation and 23% achieving 5 year graduation.

Table 1. GPA		CAPS	NON CAPS
GPA	Spring 2019	3.31	3.45
	Spring 2020	3.47	3.39
Professional Identity e.g., "I have come to think of myself as an 'engineer'	Spring 2019	3.90	3.87
	Spring 2020	4.10	3.83

Conclusions and Discussion.

The trends in both GPA and Professional Identity provide evidence of the benefits of the CAPS program. After the first year, CAPS scholars had lower GPA's than a group of comparably students who had completed the academic prerequisites of the program, but less overall financial need. But by the second year of the program, CAPS scholars' GPA exceeded that of their matched counterparts. In addition, CAPS scholars' professional identity has consistently been marginally higher compared to their peers. The qualitative data obtained from the faculty mentor and student mentee focus groups reveal several sustained successes in communicating the initial expectations for the program, and for establishing initial contact between mentors and new mentees. Scholars report a high level of satisfaction with the program and report financial, social (i.e. peer group formation), and academic benefits. Faculty also report satisfaction with their participation, including greater facility in holistic mentorship. Mentors cited benefits including an improved understanding of cultural differences and a greater ease in having conversations about how a student's academic life intersects with their family and community engagement. The results of the study suggest that others looking to support low income underrepresented students could benefit from pairing financial support with mentors trained to consider the experiences of economically and racially diverse student populations, as well as providing infrastructure for the development of peer mentorship groups.

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