

## **BOARD # 393: Mentoring as a Support Tool for Low-Income Engineering Transfer students in an S-STEM program**

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## **Introduction**

As community college students transfer to four-year institutions, they commonly encounter a phenomenon called “transfer shock” that can impact their academic success negatively [1]. Along with other issues, one of the main issues transfer students face is a lack of social integration at the new institution. This includes a lack of personal relationships with faculty as well as no integration into a peer group [2,3]. Qualitative research has shown that this lack of personal connection can be linked to less help seeking behavior shown by transfer students, which, in turn, is likely to affect their academic success negatively [4]. One of the tools that can help address this issue is the facilitation of quality interactions with faculty and peers through mentoring programs [5,6,7]. The current study aims to showcase one such mentoring program that was established as part of a larger S-STEM scholarship program for transfer students at a large four-year university in the U.S.

## **S-STEM scholarship program**

The established S-STEM scholarship program aims to increase the number of low-income community college students who successfully transfer to four-year-institutions, graduate with an engineering baccalaureate degree, and enter the STEM workforce/graduate school. The designed program targets the population of students who have the ambition to pursue engineering degrees, but often lack the resources or exposure to engineering opportunities. Transfer students join the scholarship program after their transition and stay enrolled throughout their tenure at the university. To achieve the goal of combating low persistence and graduation rates and improving the transfer student experience in engineering, the program provides co-curriculum cohort activities throughout their tenure at the four-year university. Apart from academic advising, tutoring, summer bridge programs, academic and career workshops, and industry and research internships, the co-curricular activities include a mentoring program consisting of faculty and peer mentoring.

### *Mentoring program*

*Faculty mentoring.* To increase student-faculty interaction, scholarship students are each assigned a faculty mentor. Faculty mentors are professors from key engineering disciplines, and scholarship students are assigned to individual mentors based on the fit of the students’ major and the mentors’ engineering discipline. Mentors and mentees are expected to check-in via email regularly and meet 1-2 times per term. Faculty mentors receive some initial information on what is expected of them as part of the mentoring program and are advised to share their own stories and provide a safe haven for students as part of their mentoring activity.

*Peer mentoring.* To provide social and academic guidance and support, scholarship students are matched with a more advanced scholarship student in the program as a peer mentor. Students are

matched based on their respective majors and gender (if possible) at the beginning of the program. Participating peer mentors and mentees take part in an orientation session, in which mentors' and mentees' roles, responsibilities and benefits are discussed. At the end of this orientation, matched mentors and mentees sign mentoring and confidentiality agreements. Students then meet several times throughout each term (in accordance with their availability and terms stipulated in their mentoring agreement) and submit quarterly reports on their progress allowing the program staff to assist should problems arise.

### **Evaluation of mentoring program**

To assess students' perceptions of the mentoring program, students' experiences with their faculty and peer mentor were assessed via survey. The survey assessed students' overall perception of the quality of their mentoring experiences with both their peer and faculty mentors, the way they interacted with their mentors, and their perceptions of how cultural background influences their mentoring relationships using open-ended questions as well as established scales. Data from 58 scholarship students (35% female, 54% first-generation college-going, 48% underrepresented ethnic minority students) was used.

*Overall assessment.* Students were asked to rate the overall quality of the mentoring they received (*How would you rate the overall quality of the [faculty/peer] mentoring you currently receive?*, Likert scale=1-7). They reported an above average satisfaction with their faculty ( $M(SD) = 4.8(2.15)$ ) and their peer mentoring ( $M(SD) = 4.74 (2.20)$ ). When asked about how they felt supported and in what ways their mentors could support them better, students provided important insight. Considering the support they received from their faculty mentor, students felt that faculty mentors provided important resources in terms of navigating the campus and taking advantage of opportunities on campus along with important academic and career advice. This included advice on class taking as well as on grad school applications and research opportunities. A few students also pointed out that they received important motivational support. Students did feel that faculty mentors could be better in initiating communication with them and asked for more social interactions in terms of group meetings with faculty mentors and other mentees. With regards to their peer mentoring experience, students reported that they felt particularly supported by their peer mentors academically by receiving advice on class taking and how to navigate the campus, providing academic resources and advice on how to create research/internship opportunities. In addition, some students felt that their peer mentors were acting as general sounding boards for any life issues they were going through and provided important emotional support. At the same time, some students felt that they would have liked to communicate more with their peer mentors and that their own goals and their peer mentors' goals were not aligned (e.g., different career goals) which limited the amount of support they could receive.

*Interaction with mentors.* In terms of communication with their mentor, the majority of students were satisfied with how often they communicated with their mentors (faculty mentor: 60%, peer mentor: 70%). When asked about how often they met with their respective mentors, 30 percent

of the students reported that they met once a term or more with their faculty mentor, while 60 percent of the students met with their peer mentor once a term or more.

*Identification with mentor.* To better understand whether students felt connected with their mentor, we assessed how much students identified with their mentors (Faculty mentor: Identification with faculty mentor scale [8], Sample item: *I identify with the life of my faculty mentor*, 4 items, Likert scale 1-7,  $\alpha = .95$ ; Peer mentor: Quality of mentor-mentee relationship scale [9], Sample item: *Do you feel personally connected to your peer mentor?*, 9 items, Likert scale 1-7,  $\alpha = .96$ ). Overall, they felt like they could identify with their faculty mentor ( $M(SD) = 4.66 (1.56)$ ) and rated the quality of the relationship with their peer mentor to be positive ( $M(SD) = 4.74 (2.20)$ ).

*Culturally relevant mentoring.* Given the diverse socio-demographic background of the students in the scholarship program, we also assessed whether students felt that their mentors were sensitive to their cultural background in their mentoring (Culturally relevant mentoring scale [10], Sample item: *To what extent did your [faculty/peer] mentor understand how your background (e.g., ethnicity, gender, social class) contributes to your experience of being a student?*, 3 items, Likert scale 1-5, Faculty/Peer mentor:  $\alpha = .96/.97$ ). On average, students agreed that their faculty mentor ( $M(SD) = 3.07(1.43)$ ) and peer mentor ( $M(SD) = 3.27(1.40)$ ) were somewhat sensitive to their cultural background.

## **Discussion and implications**

The preliminary results provide a first indication that the mentoring program is successful with regards to providing students with an opportunity to receive academic advice and general support from their mentors. Students on average also reported that they felt connected with their faculty and peer mentors, but did not feel that mentors fully understood the impact their cultural background might have on their experience. While the majority of students were satisfied with the frequency of communication with their mentors, they provided important suggestions for improvement. They suggested that fostering more social interactions with mentors and mentees in group settings would be beneficial for them; an activity that would likely also strengthen the quality of the relationship with their mentors and provide mentors with more insight into the personal background of the students. Students' feedback will be taken into account to improve the offered mentoring program going forward, and further feedback will be elicited from future scholarship students to ensure the continuous improvement of the program.

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