Mar 31st, 4:00 PM - 5:00 PM

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Tanya Kunberger
Florida Gulf Coast University, tkunberg@fgcu.edu

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The Impact of Near-Peer Mentoring in an Introductory Course (MS#2063)

Dr. Tanya Kunberger, U. A. Whitaker College of Engineering, Florida Gulf Coast University
Dr. Chris Geiger, U. A. Whitaker College of Engineering, Florida Gulf Coast University
Dr. Jackie Greene, College of Education, Lucas Center for Faculty Development, Florida Gulf Coast University

ABSTRACT

One methodology researchers have used to reduce or reverse poor retention rates is near-peer mentoring. Studies have shown that acting as a near-peer mentor aided in the mentor’s academic growth and was suggested to be a promising prospect for student retention. Kuh et al. have also demonstrated that the educationally purposeful activities described in the National Survey of Student Engagement, produced a statistically significant increase in first year grades, and second year persistence (1). A recent review of mentoring programs (2) suggests that more rigorous research should be completed, particularly with respect to the assessment of the social validity of the programs.

BACKGROUND

While engineering job growth continues to remain steady or increase, the lack of qualified individuals to fill these positions, particularly under-represented populations, remains a concern. Although under-represented minority (URM) groups represent 28.5% of our nation’s overall population (2006), they comprise only 9.1% of college-education Americans in science and engineering occupations (3). This underrepresentation is due to a lack of interest amongst URM groups, but is due to poor degree completion rates (4). One methodology researchers have examined to reduce or reverse poor retention rates is the use of near-peer or like-peer mentoring. It has been shown that amongst African-American engineering students at Auburn University, acting as a near-peer mentor aided in the mentor’s academic growth and was suggested to be a promising prospect for student retention (5). Similarly in a bridge program (programs designed for high school students transitioning into college engineering programs) at Tennessee Tech, African-American mentees demonstrated similar gains (6). Researchers have shown similar results in populations of women engineers (7,8) as well as research focused on first-year graduate students (9). Kuh et al. have also demonstrated through a review of an analysis of multiple engineering programs that the educationally purposeful activities described in the National Survey of Student Engagement, including tutoring, discussing ideas from readings or classes with others outside of the classroom, and having serious discussions with students of different racial, ethnic, or ideological backgrounds produced a statistically significant increase in first year grades, and second year persistence (1).

OBJECTIVES

The specific objectives of this program are to:
1. Increase self-efficacy of engineering students engaged in near-peer mentoring.
2. Evaluate the impact of mentor (TA) training on effectiveness and self-efficacy.
3. Evaluate the impact of near-peer mentoring on first-year retention in engineering.

ASSESSMENT

Formative and Summative Evaluation Utilizing a Mixed Methods Approach.
- Pre and Post Course Surveys
- Mentor / TA Interviews
- Instructor Surveys / Feedback / Observations

PROJECT SIGNIFICANCE

A recent review of mentoring programs (2) suggests that more rigorous research should be completed, particularly with respect to the assessment of the social validity (participants perceived value) of the programs. This program will build upon the foundational research described in the background section, and specifically examine the impact near-peer mentors have on cultivating a sense of belonging within engineering, and whether or not this contributes to the retention of first-year students, particularly under-represented minorities. Furthermore, this study will also examine whether or not these relationships improve the efficacy of either the mentors and/or the mentees.

RESULTS TO DATE

The quality of the feedback on assignments from the TAs
The quality of the interactions with the TAs
TA’s ability to create an ongoing relationship
TA’s ability to answer your questions about the course / course assignments

FUTURE WORK

- Integration of Pre and Post Survey Feedback from Spring 2016 with Fall 2015 data.
- Evaluation of AY 2015 – 2016 Introduction to Engineering student enrollment in subsequent engineering courses.
- Second iteration of near-peer mentor integration into all sections of the Introduction to Engineering course with continued evaluation.

REFERENCES

3. Expanding underrepresented minority participation: America’s science and technology talent at the crossroads (National Academies Press, 2010).
7. D. Farver, C. Garth, (Chicago, IL, 2006).