Board 233: CAREER: Supporting Mental Health and Wellness in Engineering Culture to Promote Equitable Change

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Abstract

Mental health and wellness in engineering education is an under-studied area of critical importance. Environments that promote mental health and wellness likely have long-term, impactful benefits. However, the culture of engineering in higher education has been described as a culture where engineering students experience higher stress, diminished mental health, and lower retention rates when compared to students in other disciplines [1-3]. This culture of stress is detrimental to mental health and wellness and is thus a critical space for change efforts. To address this challenge, this project seeks to answer the following question: *How can we dismantle a culture of high stress in engineering and instead foster a culture that promotes wellness?*

To answer this question, the presented project uses a mixed-methods approach to examine the time-evolution of engineering stress culture, educators' perceptions of the normalization of this stress culture, and resources that support a culture of wellness. Prior work includes the development of a stress culture measure [4] and student cognitive interview analysis [5]. The project has recently focused on 1) a longitudinal survey of student experiences with the engineering stress culture that includes confirmatory validation of a survey instrument developed as part of this project around engineering stress culture [4]; 2) faculty, staff, and student interviews to clarify survey findings; and 3) creating a virtual community to support practitioners, collaboratively solve problems, and envision new futures around dismantling this culture of high stress. This paper will detail preliminary findings from interviews with faculty and staff on recommended resources to support student mental health and wellness as well as an overview of the mental health and wellness virtual community (MHW-VC). Overall, this project seeks to create lasting change by contributing to the engineering education community's understanding of possible ways of dismantling engineering stress culture and fostering a culture that promotes wellbeing.

Faculty Views on Student Mental Health and Wellness: Recommended Resources

Methods

In the Spring of 2021 through Spring 2022, we interviewed 28 faculty (N=24) and academic and career advisors (N=4) at a range of institutions (Carnegie Basic classifications [6]: R1 and R2 Doctoral Universities as well as Master's Colleges and Universities). All protocols and procedures were approved by university IRB before data collection began. The interview protocol included 17 questions around participants' understanding of the climate around mental health and their perceptions of student experiences of stress, stress management, and coping. Example questions include "How would you describe the relationship between undergraduate engineering students' stress and mental health?" and "Can you describe any resources or supports on campus or in your department for undergraduate engineering students who are stressed?" Participant responses have been analyzed using a preliminary thematic analysis [7]. All participant names are pseudonyms.

Preliminary Findings and Discussion

As part of the interview, we asked the interview participants to describe any new resources that might help undergraduate students support their stress management, and they in turn suggested changes to faculty and staff training, culture, and resources.

When describing resources to support student stress management, participants shared that the biggest problem was a lack of available resources. Since resources are "overtaxed," many student supports, such as counseling services, "need to be expanded." Counseling resources could be improved through an increase in available counselors, and accessibility could be expanded through options such as telehealth. Opportunities provided by telehealth would benefit all students, especially those at satellite campuses who might have significant physical distance to on-campus resources. Other participants suggested having a counselor available in individual engineering buildings who were available for both walk-in and scheduled counseling sessions. Participants also expressed a desire for increased transparency about where to send students in need of mental health support. For example, Ted requested a triage person who they "can transfer this person [to] and know that [the student is] going to get whatever support they need."

Participants recognized a need for changes to the trainings faculty and staff received, and this included changes to:

- topics (e.g., including power dynamics, neurodiversity),
- delivery method (e.g., via role play, situational examples), and
- frequency (e.g., occurring on a regular "cadence" throughout the semester).

Lila also requested training about supporting student mental health for new faculty, since she felt she "was not prepared for that part of [her] job."

Participants also described changes that required structural or cultural change. This included changing the program structure to include fewer credits per semester, because as Rosa described, "[The students] deserve to sleep." Other suggestions focused on building community and other preventative measures such as increasing classroom inclusion. One of the most significant structural changes was described by Stephanie:

> *I would really like to figure out a way to have a conversation about mental health that didn't put the whole burden on the student. [We currently say,] "If you're stressed, that's a you problem. So, you have to go seek out resources." …It's something else they have to do on top of already being really stressed. So, that can be, a really, I don't have time for therapy. I don't have time for group stuff. So, I don't know what that looks like, but that's what I would like.*

Stephanie noted that the current system primarily encourages support for students once they are already "really stressed," but the stress they are facing prohibits them from accessing these resources. This summary of the current approach to mental health and wellness in engineering culture suggests the need for an engineering culture of wellness that integrates systematic and structural changes that proactively prioritize the wellbeing of all.

Virtual Community of Practice: Mental Health and Wellbeing in Engineering (MHW-VC)

The primary goal of forming the Mental Health and Wellness Virtual Community is to foster discussion with the goal of idea generation and mutual support. The community consists of over 90 people, with members from the wider engineering community. They include tenure-track and non-tenure-track faculty, graduate and undergraduate students, postdoctoral scholars, staff, and engineering industry personnel, all from over 50 organizations and universities. When signing up, 14 members indicated an interest in leading a community meeting at an interest level of 7 out of 10 or higher. This demonstrates that there is an interest within the engineering education community for discussion around the topics of mental health and wellness.

In an effort to increase the community engagement and active support, we have committed to encouraging a different member of the MHW-VC to lead each month's meeting. As of April 2023, the MHW-VC has held four meetings, with more planned for 2023. Members asynchronously communicate via a shared online platform. Meetings have included community-building activities, an overview of the Mental Health First Aid movement, authenticity and resilience, and mid-semester overwhelm.

Future Work

Future work on this project includes continuing community engagement alongside mixed methods research. We will continue the MHW-VC and faculty and staff interview analyses described above. Additionally, a longitudinal survey with first-year engineering students is currently underway to examine the students' experiences with stress over their time as engineering undergraduates. Finally, additional student interviews will be conducted to further examine and explore student experiences with stress in engineering.

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