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Board 188: Student-centered and led approaches for improving Mental Health

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Student-centered and led approaches for improving Mental Health (Work in Progress)

Introduction:

Engineering is a demanding and intense major. Many students experience anxiety when struggling (often for the first time) in classes while also grappling with imposter syndrome and multiple competing responsibilities. Balancing and meeting expectations can be challenging. Although these challenges are not new, our experience is consistent with recent surveys such as the one from the National Association of Student Personnel Administrators that show over 70% of respondents reported that mental health challenges had worsened at their institution in the past year [1]. Additionally, both students and faculty are discussing mental health and anxiety more frequently than in the past. After the pandemic disruptions brought the underlying student mental health challenge to the surface, the topic gained national attention. Major publications ranging from the American Psychological Association [2] to Edsurge [3] and the Chronicle of Higher Education [4] have highlighted the issue. Despite the increased focus on mental health and significant efforts to promote wellness, students within our engineering college continue to express anxiety in social situations and a reluctance to engage, expressed by one student as "we got comfortable in online classes and are stuck on mute". In focus groups and discussions with groups of students, they expressed that they did not feel others understood they were experiencing their struggles 'individually'. Students reported that they and their peers found it difficult to initiate conversations about mental health and desired more support when dealing with mental health issues.

Over the past few years, many academics have studied mental health in engineering students. Those studies include development and implementation of surveys to characterize engineering students' experiences with mental health in engineering culture [5],[6], as well as interview studies with current and past engineering students [7]. The researchers extracted the following seven factors that impact students' mental health from the interview results, and included some explanation of how and why they have an impact [7].
1. "Ubiquity of stress leads to trivializing and normalizing mental health challenges
2. Professors not being sympathetic, understanding, or accommodating contributes to mental health challenges and related stigma
3. Certain exam formats exacerbate anxiety and are not inclusive of diverse ways of thinking
4. 5-year degree programs sold as 4-year programs cause stress and anxiety
5. Ties to the military and government contracting prevent help-seeking
6. An ethos of superiority creates a culture of silence
7. Being in an environment dominated by men adds to stress and pressure on some women."

Another study that characterized engineering students' beliefs about seeking help for a mental health concern [8] found that many engineering students desire to fix their own problems, avoid admitting imperfection, and are afraid of having others know that they have sought help for a mental health concern. Follow up studies to better understand stressors identified unsupportive and challenging training environments, time management issues, and high performance expectations as key sources of stress [9]. Students' reported that relationships with family, friends, and classmates and health and wellness activities such as exercise, mindfulness, and

maintaining spiritual health were their primary coping strategies [9]. Although our students used different words, the main themes identified in these studies are consistent with our experiences.

Faculty experiences dealing with engineering student mental health have not been studied extensively, but one paper surveyed 106 faculty and administrators and found that they felt more confident talking to students about stress, discrimination, and anxiety than talking with them about eating disorders, trauma, substance abuse, and suicidal thoughts and/or behaviors [10]. Only 30% of faculty reported having any training related to student mental health [10].

Specific examples of engineering department and college responses to student mental health include the University of Windsor's multi-year mental health strategy that includes a Therapy Assistance Online (TAO) approach [11], and the Ohio State University Department of Chemical and Biomolecular Engineering's Wellness Committee of faculty and staff that raises awareness, holds wellness events, and organizes a Mental Health Round Table where faculty, students and administrators gather twice per semester to learn from and give feedback to each other [12].

Student-led activities to address mental health:
This work in progress differs from the prior work in the literature in its level of student leadership for developing and implementing solutions. As faculty and administrators in the Ohio University Russ College of Engineering and Technology were learning and monitoring the studies on mental health challenges, students took the lead on proposing some practical solutions. In Fall of the 2021-2022 academic year, a small group of students worked with a few faculty and staff to create a community to promote wellness and create a space for students to feel that it was 'okay not to be okay'. These initial efforts to initiate conversations, bring struggling students together for mutual support, provide an outlet for expressing frustration, practice self-care, and increase feelings of belonging created a positive momentum shift in the college.

In Spring of 2021-2022, a group of engineering students founded ERASe (Engineers Reducing Stress Anxiety etc.) in an effort to make a diverse set of well-being activities available to a wide range of students. Student members participated in painting, journaling, nature walks, picnics, and meditations. Many students said they would not have done these activities themselves, but they enjoyed spending their time relaxing with others in the group. The largest turnouts were for breathing exercises and meditations marketed as 'study breaks' during exam week. Weekly meetings were not successful in attracting many students, so the student leaders of ERASe focused on creating opportunities where it was easy for students to practice self-care simply by showing up. It was evident that most engineering students did not practice self-care on their own, either because it was hard to find time or because they did not know how. Personal invitations were most effective at getting others to join the wellness activities. Student consensus, reported in discussions with their advisor, was that the most valuable part of the entire experience was the validation of knowing that they were not alone in their struggles and feeling safe and supported to talk about their challenges. Student A, student founder and first president of ERASe, said the following (paraphrased):

> The creation of ERASe was the single most valuable piece of my college experience. For me and my peers, college is a time to learn about yourself in a way that parallels academic studies. Engineering students face intense workloads; they cannot meet their

full potential without proper time and stress management resources. Problem solving and creativity are core needs when studying engineering, and a healthy mindset is necessary to succeed.

Student B, one of the first student members and second president of ERASe, stated that before ERASe, she felt very alone in struggling.

"Since no one really talks about mental health and how school specifically can affect your mental health, it is hard to know that you are not alone in how you are feeling. Normalizing the conversation about mental health makes it much easier to share and work through things."

During Fall 2022-2023, ERASe partnered with the Russ College of Engineering Student Senator to host a wellness week for the college. The students proposed and led the following activities:

- Mindfulness and Journaling: a group meditation followed by a journal reflection
- Planting healthy roots: Focus on the correlation between taking care of a plant and decreased symptoms of depression and anxiety. With financial support from Ohio University Student Senate, students were provided with materials to plant succulents and paint pots.
- Mind over mat(ter): A yoga event was created to give students the opportunity to explore the physical aspects of mental wellness. Yoga often helps encourage mindfulness and stress relief.
- Box it out: This provided another physical pathway (boxing) for students who feel less comfortable being vulnerable.
- Meet, Greet, & Treat: Tables offering mental health resources and cookies were set up to help increase student awareness of available resources, while also demonstrating that they are not alone. Counseling and Psychological Services (CPS), Bandana Project, and Russ College Student Services were involved.
- Game Night: pizza was provided and students were told they could bring their own games to get together and have a game night.

Key learnings from Wellness Week included insights on the population of students interested in more readily available mental health resources, the current lack of resources for students in the Russ College, the stigma around mental health in the Russ College, and the students' perception of the administration's support. Of the 150 students who attended the Meet, Greet, and Treat event, approximately 50% seriously considered the resources or mentioned that the event was helpful and meaningful for them. This indicates that although some students may be hesitant to seek help, incentives can increase participation. Many students mentioned the difference in promotion/support between the university and college levels. Several students noted that engineering students often isolate themselves to just engineering activities, making it difficult for them to find resources, groups, and friends beyond the Russ College of Engineering and Technology. Consequently, the lack of mental health support can be very damaging for these students. The stigma around mental health was apparent to the student organizers while promoting events, where individuals were more likely to engage in conversation than those in a group. Many students who attended events mentioned that, in the engineering environment, they felt uncomfortable admitting they may need support. Students expressed that their grievances

often went unheard or unnoticed when it came to mental health. The combined effect of instructors not acknowledging the amount of stress students were under or granting them leeway when requested, and the lack of mental health resources available in the college led to the perception that no one in engineering cared about their struggles.

In addition to the student-led groups and activities, the university has organized and funded Mental Health First Aid (MHFA) Training for faculty and staff. The faculty advisor for ERASe, a department chair and senior faculty member, and a student success advisor successfully completed the MHFA certification in an early offering, and others are expected to pursue the training. The main benefits of the MHFA training included connecting with others working on mental health throughout the university, learning how to apply the ALGEE method (Assess, Listen, Give reassurance, Encourage professional help, Encourage self-help) [13], and feeling supported and encouraged to continue working on mental health improvements even when it feels incredibly challenging. The MHFA-trained faculty have taken steps to bring mental health conversations into engineering classes. For example, in the same way the 'safety moments' are sometimes used to start a class, faculty have introduced 'mindfulness moments' at the beginning of a class to encourage healthy practices and advance conversations about stress, anxiety and available resources and coping strategies.

The Russ College DEIAB committee also launched Belonging Grants in Fall 2022-2023 to support creation of a more inclusive learning environment in the college and to remove financial barriers that might exist in getting initiatives started. In Spring 2022-2023, ERASe submitted a Belonging Grant proposal to purchase personal wellness or 'stress-less' kits that could be distributed as practical resources for students to reduce stress and anxiety. The proposal was funded, all of the 30 kits have been distributed and ERASe is awaiting responses to the surveys attached to the kits to evaluate the impact of the kits.

Results and Future Plans:

Student leadership of ERASe has decided to move towards more events that target the whole college rather than just people who have joined the club. ERASe is focusing on applying lessons learned over the past year and partnering with the Russ College Student Senator and Russ College Student Services to implement or support several initiatives.
- Launching community wellness kits to be available in most of the common work/study locations in the engineering buildings, allowing students to take mindful breaks and have conversations about how things are genuinely going and how they are genuinely feeling. Initial results after 1 week of launching show that three students have checked out a kit and are likely to recommend and use them again.
- Securing a mental health/wellness space to be created in Stocker Center, a main engineering building. Conversations continue as space allocations are shifting at the end of Spring 2022-2023.
- Working with CPS at the university to have an embedded, experienced counselor within the College of Engineering to lead groups and drop-in sessions to support engineering students. Contracts are in review.

- Hosting another wellness week during Fall 2023-2024. Lessons learned from these initiatives will be used to advise future events and activities, with a focus on continuously improving the mental health support and resources available for engineering students.
- Surveying all engineering students on mental health and wellbeing awareness and needs during Fall 2023-2024.

As ERASe continues to grow and evolve, its focus remains on addressing mental health challenges faced by engineering students and fostering a supportive community that normalizes conversations about mental health. The group's long-term vision is to shift the college culture towards one that values mental health and promotes healthy coping mechanisms, self-care, and overall well-being. By implementing lessons learned, collaborating with various stakeholders, and expanding its reach, ERASe aims to make a lasting positive impact on the engineering community at our university.

Qualitative analysis of the results from a survey of students who are currently active in ERASe or have participated in ERASe activities identified the following themes:

- Student-led matters: All students mentioned that having student-led events are critical for their involvement and increasing the likelihood that other students' will engage. In the words of one student, "It can be less scary to be involved if it is with students rather than staff." Another theme in the responses was that seeing peers leading activities and seeking help broke down barriers, made them feel safe to be vulnerable themselves, and helped them choose to take steps to prioritize their mental health.
- Wellness practices transfer: Five students reported having an experience of transferring a wellness practice from ERASe to a workplace or other situation. One student stated, "[ERASe] has taught me that it is okay to take a step back away from work to focus on getting your mind right. If you aren't mentally healthy then you can't perform your best at your job so take care of your mind first." An alumnus reported "I have a very emotionally taxing job at times, as I work closely with healthcare systems. Staying grounded during stressful/highly emotional situations at work is crucial to creating a professional presence and to preserve my mental wellbeing. Being able to ground myself with breathing techniques before getting overwhelmed has also done wonders for me."
- Opportunities and visibility: All students agreed that the act of helping others who were experiencing stress or anxiety also had a positive impact on them. All respondents agreed that they benefitted from practicing wellbeing activities, especially in a supportive community. One student's response highlighted the impact: "Being involved in something valuable has been very important for me. This is something I really do care about on my own time, so being able to advocate for it with others has been beneficial for me. There are days I struggle to find time even to eat dinner let alone take a minute for myself, but since joining I have seen improvements in my work after taking a break."

We recognize the importance of measuring the impact of student-led interventions for improving student wellbeing, and also the challenge of making meaningful measurements. A comprehensive culture audit [14],[15] is being planned to make transparent the multiple micro-

cultures students and faculty belong to and their primary characteristics and influences. This will be done in the larger context of understanding the complex system of influences on students and faculty within the transient community in an engineering college, to track longitudinal impact on the development of a culture of wellbeing. To date, surveys of students have targeted those already involved in activities and as leaders, so future surveys will also try to identify barriers for those students who are struggling but are not participating in available activities or practicing self-care.

In conclusion, addressing mental health in the engineering community is essential to the well-being and success of students. Although there is still much work to be done, the steps taken by ERASe and the university have demonstrated a commitment to creating a more inclusive and supportive environment. By continuing to listen to students' needs, fostering collaboration, and providing resources, we can work together to ensure that engineering students feel valued, supported, and understood as they navigate the challenges of their academic journey.

References

[1] "Colleges Increasingly Prioritize Mental Health, Survey Shows." Inside Higher Ed, 18 Jan. 2023, https://www.insidehighered.com/quicktakes/2023/01/18/colleges-increasingly-prioritize-mental-health-survey-shows.

[2] "Mental health on campus: Caring for the whole student." APA Monitor, vol. 53, no. 9, 2022, https://www.apa.org/monitor/2022/10/mental-health-campus-care.

[3] "Trauma and Social Anxiety Are Growing Mental-Health Concerns for College Students." Chronicle of Higher Education, 22 Mar. 2022, https://www.chronicle.com/article/trauma-and-social-anxiety-are-growing-mental-health-concerns-for-college-students.

[4] Liu, Yuying, et al. "Characterizing Mental Health and Wellness in Students Across Engineering Disciplines." Proceedings of the 2019 ASEE Annual Conference & Exposition, 2019, https://peer.asee.org/characterizing-mental-health-and-wellness-in-students-across-engineering-disciplines.

[5] Arnold, Kate, et al. "Supporting Undergraduate Mental Health by Building a Culture of Wellness in Engineering." Proceedings of the 2021 ASEE Virtual Annual Conference Content Access, 2021, https://peer.asee.org/career-supporting-undergraduate-mental-health-by-building-a-culture-of-wellness-in-engineering.

[6] Lattuca, Lisa R., et al. "In Their Own Words: How Aspects of Engineering Education Undermine Students' Mental Health." Proceedings of the 2019 ASEE Annual Conference & Exposition, 2019, https://peer.asee.org/in-their-own-words-how-aspects-of-engineering-education-undermine-students-mental-health.

[7] Knapp, Christina A., et al. "Characterizing Undergraduate Engineering Students' Experiences with Mental Health in Engineering Culture." Proceedings of the 2018 ASEE Annual

Conference & Exposition, 2018, https://peer.asee.org/career-characterizing-undergraduate-engineering-students-experiences-with-mental-health-in-engineering-culture.

[8] Heim, Kaitlyn, et al. "Identifying Common Perceived Stressors and Stress Relief Strategies among Undergraduate Engineering Students." Proceedings of the 2021 ASEE Virtual \Annual Conference Content Access, 2021, https://peer.asee.org/identifying-common-perceived-stressors-and-stress-relief-strategies-among-undergraduate-engineering-students.

[9] McClellan, Lynette, et al. "Faculty Experiences with Undergraduate Engineering Student Mental Health." Proceedings of the 2019 ASEE Annual Conference & Exposition, 2019, https://peer.asee.org/faculty-experiences-with-undergraduate-engineering-student-mental-health.

[10] Mahdi, Raza, et al. "Work in Progress: Mental Health Initiatives and TAO at the University of Windsor." Proceedings of the 2021 ASEE Virtual Annual Conference Content Access, 2021, https://peer.asee.org/work-in-progress-mental-health-initiatives-and-tao-at-the-university-of-windsor.

[11] Tang, Stephanie, et al. "Supporting the Mental Health and Wellness of Chemical Engineering Students at the Department and College Levels." Proceedings of the 2020 ASEE Virtual Annual Conference Content Access, 2020, https://peer.asee.org/supporting-the-mental-health-and-wellness-of-chemical-engineering-students-at-the-department-and-college-levels.

[12] "ALGEE Action: Helping a Friend in Need." Mental Health First Aid, 2017, https://www.mentalhealthfirstaid.org/external/2017/09/algee-action-helping-friend-need/.

[13] Bustamante, R. (2009). The Culture Audit: A Leadership Tool for Assessment and Strategic Planning in Diverse Schools and Colleges, OpenStax, Retrieved from https://files.eric.ed.gov/fulltext/EJ1066685.pdf July 15, 2022.

[14] Connor, M. Learning Culture Audit. Retrieved from https://marciaconner.com/assess/learning-culture-audit/ July 15, 2022.