Who's Not At The Table?:
Building Research Capacity for Underserved Communities in Engineering

Thread 1: What Theories Inform Your Work?

A number of participants expressed anxiety and intimidation regarding the use of theory in their work. Theory was often characterized as a "scary space", and some participants questioned the appropriateness of applying existing theories commonly used in engineering education to studying the populations in question. The hesitancy regarding the use of existing theory was due to concerns that the assumptions underpinning them are often at best, unstated, and at worst, often function to (re)produce marginalization. In particular, critical theories were suggested as an alternative because they incorporate the historical context surrounding policy and practice; participants felt that critical theories offered powerful tools to challenge exclusionary practices in educational systems. Other participants emphasized theories related to identity, change, and learning. Some participants even took an anti-theory stance suggesting that work related to these populations should not by being guided by theory, but instead new theories should be generated from the data.

Thread 2: What Research Methods Inform Your Work?

Participants cited the many ways that research data collection, analysis, and dissemination often work to further marginalize the communities of discussion. Participants identified proposal reviewers and funding agencies as forces driving research foci and methods by controlling what research is funded. Participants expressed concern that despite the growing need for research methods capable of capturing and reporting the experiences of marginalized persons within engineering, they observed a disproportionate preference among engineering education research communities and funding agencies towards large quantitative research studies. Participants questioned the appropriateness or ability of quantitative methods to capture the stories and voices of these populations; instead participants identified qualitative research methods as being much more appropriate to capture and understand marginalized experiences. Finally, participants emphasized the need for researchers themselves to critically examine their own assumptions and values underlying their work.

Thread 3: What Research Questions Inform Your Work?

Participants discussed the importance of exploring how institutional structures, policies, and practices affect visibility, recognition, and inclusion for individuals from different social groups. The participants also emphasized research questions that worked to create inclusive campus and engineering environments and utilized co-constructive methods. Finally, participants believe both researcher and practitioner knowledge should inform research questions in ways that break down normative culture to lessen barriers and marginalization of individuals from underrepresented groups.

Thread 4: What Educational Practices Or Experiences Inform Your Work?

Participants discussed and highlighted institutional structures that act as barriers preventing students in these populations from participating fully; namely the policies and cultural norms of engineering education defining the very narrow range of identities that align with what/who an engineer is. The participants also emphasized how such institutional barriers can be reduced when institutions of higher education and engineering departments make inclusion a priority and engage in diversity and inclusion efforts and by making classrooms accessible and incorporating these themes into the curriculum. Finally, participants called for a stronger path for research to inform practice and program development as well as research being informed by practice.

Thread 5: What Are The Things You Wish You Knew Better To Do Your Practice?

Participants were looking for guidance on how to create and sustain institutional change on all levels of educations (i.e. K-12, college, as a researcher/practitioner, in one's professional practice). They also questioned how to challenge the existing stigmas and norms within engineering to help shift the culture towards a more inclusive environment. In particular, participants wondered how to achieve buy-in and find out who could act as their partners and allies in these efforts; some participants characterized the work of challenging the system of engineering education as treacherous journey for a new faculty member or researcher.

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