

Board 298: From Cohort to Classroom: Transitioning to Year 2 in a Faculty Learning Community

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Abstract

In the College of Engineering, Design and Computing at the University of Colorado Denver, a faculty learning community (FLC) is exploring how to apply known pedagogical practices intended to foster equity and inclusion. Faculty come from all five departments of the college. For this three-year NSF-funded project, Year 1 was dedicated to deepening reflection as individuals and building trust as a cohort. Now, in Year 2, the FLC is focused on translating pedagogical practices from literature and other resources into particular courses. This cohort has experienced some adjustments as some faculty leave the FLC and new faculty choose to join the FLC. Since this cohort continues to grow, this paper presents key features that have supported the FLC's formation and then transition to Year 2, as well as the design and implementation of a new faculty orientation, called the Welcome Academy, specific to new engineering faculty and practices related to diversity, equity, and inclusion. Finally, drawing on the principal investigator (PI) team's reflections as well as feedback from external evaluators, we provide our insights with the intention of sharing useful experiences to other colleges planning to form such FLCs.

Introduction

Overwhelming evidence points to the need for diversity, equity, and inclusion (DEI) practices in the profession of engineering in general, and in engineering education in particular. There are strong arguments for embracing DEI practices, from both economics (to improve the national technical workforce) and ethics (to right social injustices). Yet, decades after recognizing these arguments, measurable progress has been distressfully slow [1]. Although a great deal has been learned on how to support students from all genders, races, ethnicities, and religions, with multiple channels of financial aid available, a crucial element has been missing. Multiple lines of evidence, from scholars representing a diverse cross-section of disciplines, indicate this missing element is the need for deeper awareness and better practices by faculty. To provide just three examples, Koch documents how minoritized students are harmed by traditional forms of teaching such as lectures, grades based on a strict bell curve, and optional help sessions [2]. Blanchard argues that faculty need immersive training in cultural responsiveness, and that such training is the lowest hanging fruit [3]. Furthermore, Mack and colleagues clearly document the breadth and depth of the cultural disconnect between engineering faculty and their students, explaining that this problem cannot be fixed with a checklist, and instead call for the cultivation of mindfulness among faculty [4].

One reason that attempts to change faculty behaviors fail may be how independently faculty operate in the classroom. Any attempt to shift teaching practices cannot rely on top-down

mandates, but instead needs top-down support with bottom-up encouragement from colleagues, accompanied by a shift in the overall culture of a college of engineering. By providing a designed *choice architecture* specifically in the form of *nudges* [5], we intend to respect faculty's academic freedom while supporting the adoption of DEI teaching practices.

This project, Engineering is Not Neutral: Transforming Instruction via Collaboration and Engagement (ENNTICE), aims to improve student success through the creation of a Faculty Learning Community (FLC). Here we outline the FLC, emphasizing multiple points when it was necessary to adapt our plans to suit the needs of our particular group. Accordingly, we overview the FLC through a series of key features as Aims, Plans, and Modifications; that is, what we were attempting to do, how we planned to achieve that aim, and what modifications we have had to make thus far during the project. This is in the service of demonstrating the flexibility needed in a changing environment, and acknowledgement that this work is not about replicating someone else's checklist, but rather getting a sense of when to shift. We include a brief description of the opportunity to extend the FLC work by providing a new faculty orientation, called the Welcome Academy, which was an opportunity for the whole FLC, not only the PI team, to contribute to DEI practices in the College of Engineering. Finally, we end with early insights from across these faculty experiences.

Overview of the ENNTICE Faculty Learning Community

ENNTICE is a three-year project of the College of Engineering, Design and Computing at the University of Colorado Denver with three research questions:

1. How can participation in a faculty learning community (FLC) enable or nudge engineering faculty to adopt and personalize mindful reflection and best practices?
2. How and to what degree does faculty participation in an FLC impact engineering college culture?
3. To what degree does faculty participation in an FLC impact engineering student belonging and success?

To create the FLC, at least two faculty members were recruited from each of five departments. Together with the principal investigator (PI) team, the FLC has around 15 members. In addition, one research assistant and one or two evaluators usually attend sessions. The FLC meets once per month for eight months during the academic year, on Friday mornings, a time that has very few courses scheduled at this particular university. The PI team meets on the Friday prior to the FLC session to plan the details of the session. An evaluator usually attends this planning meeting as well.

Generally the FLC sessions follow the topics of the Equity Toolkit, a freely-available resource, developed by the Colorado Department of Higher Education [6]. During Year 1 (2021-2022), each session was a discussion around a different resource (an article or video) in the area of Self-Inquiry. Further details on the formation and first year of this project, including a more detailed literature review of our approach can be found in [7].

Having established a cohort in Year 1, Year 2 (2022-2023) is focused on nudging faculty to adopt known best practices for DEI in their classrooms, again following the three-part structure of the Equity Toolkit. Each FLC member adopts at least one of these practices, utilizes it in their courses, and discuss with the FLC how it went. Year 3 (2023-2024) will focus on nudging faculty to adopt known best practices for DEI beyond the classroom to create and maintain an inclusive engineering college community.

Key Modifications

Aim #1: Create a community where sensitive topics can be discussed with an emphasis on collegiality and openness. Since FLC members were recruited from across the five departments, many of them did not know each other at the beginning, and yet we wanted them to feel comfortable sharing difficult questions, insights, and struggles.

Plan: Create a friendly atmosphere by providing breakfast, meeting in person, and using small breakout groups where everyone has the opportunity to speak. Ensure confidentiality by omitting audio and video recording and by presenting a parody of the famous welcome sign outside Las Vegas, Nevada (Figure 1).



Modifications: For Year 1, mask restrictions and social distancing were still in place. As a result, breakfast was served by providing to-go boxes that members took with them or by spreading people out sufficiently to eat beforehand. This inhibited the casual “getting to know each other” time we had hoped for. Now, in Year 2, we are able to have these more casual eating times together. While we encourage attending in person, we have set up video call links to allow for participants to join remotely. Typically, we had enough participants joining us this way, that they could become their own breakout group for discussion. When there are remote participants, one project team member also joins remotely, to foster community.

Moreover, the PI committed to scheduling and conducting brief make-up workshops for any FLC members who could not attend, either in person or on video call, and having a discussion with them on the topic of the session. In this way, even members who could not attend had the opportunity to discuss and reflect on the topic. We believe this also makes it easier for them to rejoin the meetings without sensing that they have missed too much of the ongoing discussion to fully participate. And we speculate that setting the expectation for make-up sessions also nudges participants to attend the main session. Opting out is not an option.

Aim #2: Spread best practices for DEI in the classroom. These already exist and in many cases are well-researched. Instead of developing new methods, our goal will be to move research to practice.

Plan: Follow the Equity Toolkit [6] as an outline for all three years of our FLC meetings.

Modifications: While the Equity Toolkit is a well-curated, well-researched set of resources, and provided ample resources for the Year 1 sessions focused on Self-Inquiry, the co-PIs desired a list of classroom techniques more specifically focused on engineering education. We found we needed to locate and curate other course-specific practices. One co-PI located resources collected by the University of Mississippi [8], University of South Australia [9], Vanderbilt University [10], and the University of Michigan [11], among others. These resources were presented during the first meeting of Year 2, and became a collection for all members of the FLC to browse and then choose a practice to try in their classrooms. These resources were further curated by the PI team to present a handful of quick-to-implement techniques as they started the spring semester. Another key difference, compared to the Equity Toolkit, was challenging faculty to try new inclusive teaching strategies through the engineering framework of *rapid prototyping*, where the designer creates a prototype, tests it, collects feedback, and then iterates the design. The FLC workshops have become a venue for iteration under the mantra of “what worked, and what wrinkled?”

Aim #3: Conduct research to understand what, if anything, of the nudging and choice architecture practices are making a difference in instructor attitudes and behavior in the classroom, and whether that be detected among students.

Plan: One data source was to be written reflections by FLC members, which they would write after reading/viewing an assigned resource, to be completed before every FLC meeting, which would be turned in and anonymized.

Modification: To our surprise, only half the FLC participants (again including the co-PIs) submitted a written reflection. Still, discussions were robust and useful. As a co-PI team, we discussed how Year 1’s focus on self-inquiry could have made faculty feel more vulnerable to share their reflections in writing. We learned from the evaluation reports that some members were concerned that, with the small community size, their work would be easily re-identified. As an alternative data source, we have turned to materials collected during the workshops: Reports by participants, reflections written by the PI team shortly after each meeting, and the evaluation team’s reports, which share insightful summaries of focus group data. The research plan continues to develop.

Aim #4: Spread the impact of the FLC beyond the members of the FLC, to create a ripple effect of improved teaching throughout the College of Engineering.

Plan: Find small ways to encourage FLC members to share their experiences with non-FLC faculty. This was unspecified in the proposal.

Modification: Opportunities for nudges have emerged. While some of these are very informal, and shared as anecdotes from FLC members, one opportunity is more structured. The PI team has created a thermometer diagram showing how many of the rostered faculty in each department have undergone significant DEI training related to teaching (Figure 2). The thermometer diagram is borrowed from the nonprofit sector, where thermometers show how close an organization is to reaching a certain fundraising goal, for example. ENNTICE FLC participation counts as “significant DEI training,” as well as the Inclusive Pedagogy Academy, a semester-long professional development experience developed by the Biology Department and now available to the whole university. FLC members then share the thermometer diagrams with their home departments,

creating a sense of friendly competition, nudging more faculty to participate, whether in the FLC or other training opportunities. This both raises awareness of those training opportunities and of FLC members who can serve as resources for other faculty. In one anecdote, an FLC member shared that he had been recognized for his participation by another faculty member who had done a different sort of training, ending a sense of isolation they had both felt. Another faculty member joined the FLC in the afternoon after seeing the thermometer at a faculty meeting that morning.

Aim #5: Create an expectation among new faculty that they need to utilize DEI teaching practices.

Plan: Have the PI team contribute to the new faculty orientation.

Modification: The PI team was invited to provide DEI-specific training for incoming full-time faculty for Fall 2022. This first-of-its-kind (at least in our College of Engineering) four-hour training was named the Welcome Academy for New Faculty. Instead of preparing this solely among the PI team, we used this as an opportunity to enact the practices the FLC espouses, by inviting the whole FLC to collaborate. We used an off-site retreat to help plan the Welcome Academy. The off-site planning day deliberately reinforced the core ideas of the FLC. The first segment of this day featured alumni and students who were women and people of color to share their experiences of the College of Engineering. The second segment focused the FLC on brainstorming and organizing ideas to determine what would be most important and impactful for new faculty. A full description of how the Welcome Academy was designed and

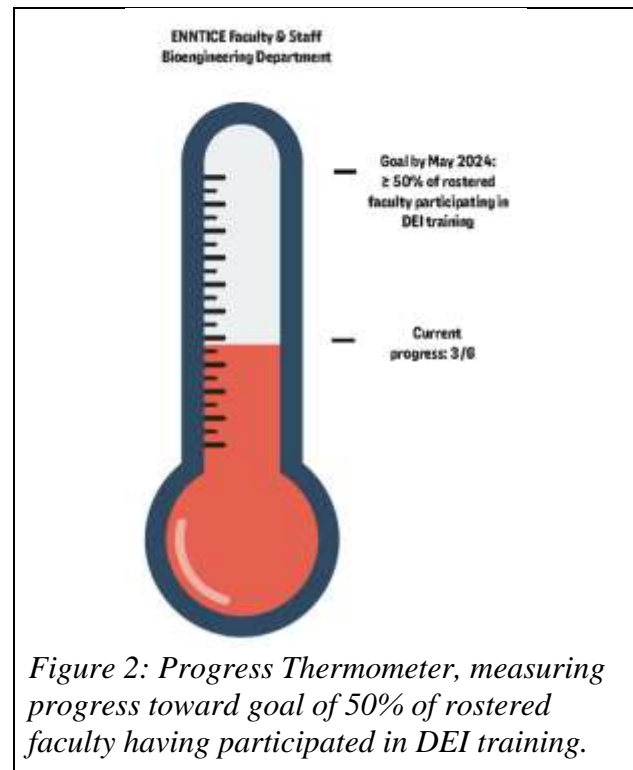


Figure 2: Progress Thermometer, measuring progress toward goal of 50% of rostered faculty having participated in DEI training.

implemented is being developed as a separate journal article. The PI team plans to iterate on this design for future new faculty.

Insights

In addition to modifying specific plans, the FLC has generated key shifts in the understanding of the PI team.

Insight #1: A changing community can still be a trusting community.

While we anticipated modifications to the membership of the FLC, we did not predict all the changes. Faculty have left the FLC after going on sabbatical, serving as interim department chair, experiencing medical needs, or leaving the university altogether; faculty have joined the FLC after participating in the Welcome Academy for New Faculty, and after seeing their department's thermometer diagram. We are pleased that despite these changes, the group continues to have the deeper conversations only possible in a trusting community.

Insight #2: DEI work cannot be pitted against research opportunities.

This insight exposes what Goldberg and Somerville call a *co-contrary*, or a pair of opposites that need each other [12]. In this case, we noticed a tension between asking faculty to prioritize DEI work through the FLC meetings, versus making sure their DEI work did not cause them to miss research opportunities. For example, our provost's office scheduled a morning workshop, where faculty could compete for significant research seed funding, at the same time as our FLC. We found ways to rearrange the schedule to not place these two important meetings on top of each other. We recognize that minoritized faculty are often asked to perform substantial DEI-related work that does not count toward their tenure or promotion, a systemic barrier to diversifying the professorate called *cultural taxation* or *identity taxation* [13]. To counter this barrier, we strive to emphasize that DEI work—for all engineering faculty—is not separate work from our technical research, but rather something that should shift both teaching and research practices. Our vision is that engineering researchers should be more successful *because* they utilize DEI practices, not *despite* the time needed to invest in them.

Insight #3: While the FLC is aimed at improving student outcomes, it may also support minoritized faculty.

Especially during Year 1, which focused on Self-Inquiry, members shared examples of discrimination against themselves, either in their role as faculty or in the past when they were students. The faculty recruited into the FLC are more likely to be women, people of color, and immigrants/children of immigrants. This helped break the false dichotomy of us (faculty) and them (students), while providing eye-opening insights for the faculty from majority statuses. It has also connected the faculty from minoritized groups across departments.

Insight #4: Improving teaching practices for DEI improves teaching overall.

One insight from the tenured and tenure-track FLC members is that they have not taken the time to examine their teaching practices during their careers very often, if at all. They commented that

having the support to reflect upon and improve their teaching practices from a DEI perspective meant they would be deliberately improving their teaching overall. This has also positioned the non-tenure track faculty as having valuable expertise to share, a role reversal from other faculty experiences.

Discussion

While no research project ever goes completely as planned, projects engaged in behavior change are more sensitive to the shifts in community. The ENNTICE PI team has worked to adapt the plan as pandemic restrictions, community needs, and our own understanding have changed. For example, while the PI team desires everyone to attend FLC meetings in person, there is room for hybrid participation when members of the FLC require it. Furthermore, the PI team continues to respond to feedback from FLC members, via our project evaluation and informal discussions.

Our PI team has a goal for faculty's implementation of DEI practices to challenge the status quo in engineering instruction. Hence, our PI team has designed the FLC meetings with organizational change theory in mind [14]. One challenge faculty can face is a perceived need to cover a large amount of course content, and a few FLC members have expressed that they find it difficult to make room for DEI practices. To address this, our PI team has nudged faculty to shift DEI practices from the periphery, to become part of the "real" course instruction. Encouragingly, student course evaluations from one member of the PI team have indicated that students find the practices valuable.

The best, and perhaps hardest to pinpoint, change has been a shift from a feeling of organizers (the PI team) as separate from the participants (FLC members) toward being all one group. While in the Year 1 FLC meetings, we tried to have at least one member of the PI team in each breakout group, we no longer make that effort in person (although we do have a member of the PI team meeting remotely if at least one FLC member also does so). With this move, we afford FLC members with agency to engage in thoughtful discussion about these topics, and share out what they learned. Furthermore, this gradual release of responsibility from the PI team to FLC members also extends to design of upcoming meetings (e.g., the Welcome Academy for New Faculty). As a result, we believe we are that much closer to our goal of each FLC member being confident in their ability to enact and share DEI teaching practices.

Conclusion

ENNTICE began with the premise that faculty would respond more favorably to nudges than mandates for implementing DEI teaching practices. As a result, the plan implementation has had to be flexible and adaptive. Because articles, reports, and presentations about these kinds of projects are often written in a matter-of-fact tone, the process of making these adaptations can be hidden from the audience that could most use them. Here we presented modifications to our plans as well as insights from the work thus far, halfway into a three-year project. We look forward to what the second half of the project will teach us.

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