Engineering Educators Bringing the World Together
2025 ASEE Annual Conference & Exposition
Palais des congrès de Montréal, Montréal, QC • June 22–25, 2025 ASEE
Paper ID #47298

Work in progress: Scaffolding faculty success and retention through a learner's approach to faculty development

Dr. Jean-Francois Chamberland, Texas A&M University

Dr. Jean-Francois Chamberland is a professor in the Department of Electrical and Computer Engineering at Texas A&M University. He currently holds an administrative appointment as the Associate Dean for Faculty Success in the College of Engineering.

Dr. Sunay Palsole, Texas A&M University

Dr. Palsole is Assistant Vice Chancellor for Remote Engineering Education at Texas A&M University, and has been involved in academic technology for over 20 years. He helped establish the Engineering Studio for Advanced Instruction & Learning (eSAIL),

Dr. Kristi J. Shryock, Texas A&M University

Dr. Kristi J. Shryock is the Frank and Jean Raymond Foundation Inc. Endowed Associate Professor in Multidisciplinary Engineering and Affiliated Faculty in Aerospace Engineering in the College of Engineering at Texas A&M University. She also serves as Director of the Craig and Galen Brown Engineering Honors Program. She received her BS, MS, and PhD from the College of Engineering at Texas A&M. Kristi works to improve the undergraduate engineering experience through evaluating preparation in areas, such as mathematics and physics, evaluating engineering identity and its impact on retention, incorporating non-traditional teaching methods into the classroom, and engaging her students with interactive methods.

Dr. Karan Watson P.E., Texas A&M University

Karan L. Watson, Ph.D., P.E., is currently a Regents Senior Professor of Electrical and Computer Engineering, having joined the faculty at Texas A&M University in 1983 as an Assistant Professor. She is also serving as the C0-Director of the Institute

Dr. Arul Jayaraman, Texas A&M University

Dr. Arul Jayaraman is the Ray B. Nesbitt Endowed Chair in the Artie McFerrin Department of Chemical Engineering at Texas A&M University. He also serves as the Executive Associate Dean in the College of Engineering.

Work in progress: Scaffolding faculty success and retention through a learner's approach to faculty development

Abstract — Assistant professors in research-intensive environments typically begin their appointments with demonstrated excellence in research and knowledge creation. They possess the skills to identify and solve relevant research problems and effectively navigate the peer-review process to publish in leading academic outlets. However, they may have limited experience in other critical aspects of their roles, such as teaching, advising, group management, proposal development, securing funding, and engaging in meaningful service opportunities. Nevertheless, mastery of these responsibilities is expected within a relatively short probationary period, presenting significant challenges. The situation may be slightly different for early-career faculty members in academic professional track positions, yet they too must rapidly adapt to new responsibilities. This article proposes framing early-career faculty as learners by applying concepts such as the zone of proximal development and community building to faculty development and long-term success. Adopting a learner-centered perspective where skills are scaffolded through a learning continuum is particularly relevant given the rapidly evolving technological landscape and the changing needs of student populations, which demand adaptability from faculty. This conceptual framework extends to near-peer and more senior faculty members who engage with early-career colleagues. Engagement events can be designed as gateways into meaningful mentorship and institutional service for faculty members who were recently promoted, essentially providing an experiential learning environment in academic citizenship. The article reflects on strengthening academic culture in an era where quantitative metrics, online training, and electronic communications often act as a curtain that isolates faculty members from human interactions. Altogether, this article explores mechanisms for elevating faculty success through scaffolding and the strategic use of near peers in faculty development workshops and communities concerned with all dimensions of faculty performance.

Introduction

This article positions faculty members, particularly those early in their careers, as learners and seeks to adapt lessons from the education literature to design a coherent framework that facilitates long-term success and engaged faculty citizenship. Many institutions favor condensed onboarding programs, where new faculty attend a series of workshops on various topics, often delivered through lecture-style sessions over a few days. While convenient, these orientations typically rely on expert-driven presentations and risk overwhelming participants with information overload. This common approach contrasts with concepts like deep learning, which emphasizes periodic reinforcement of foundational knowledge, and experiential learning, which integrates active engagement with real-world applications. The latter methods align with Mezirow's transformative learning theory [1], which emphasizes the importance of critical reflection and meaning-making in adult learning rather than passive information absorption. Faculty development programs, admittedly, are not uniform; and there is a need to account for a local culture, circumstances, and limitations. Some programs incorporate scaffolding through periodic meetings and individualized interventions, fostering a more sustained and supportive learning process. In the spirit of continuous improvement, this article reflects on and aims to enhance the methodologies employed in faculty development. We embrace the perspective that every faculty member is a lifelong

learner and draw parallels between best practices in scholarly teaching and faculty development initiatives. Specifically, we focus on strategies such as experiential learning, near-peer mentoring, goal setting, meaningful feedback, and cultivating communities of practice [2, 3].

Learning theories and educational psychology have been applied to faculty development in the past. For instance, the transtheoretical model of behavior change [4] has been adapted to the evolution of a teacher-professor [5]. The development of an instructor can be considered from an adult learning perspective [6, 7]. Furthermore, the development of instructors has been framed as a combination of reflection-in-action and reflection-on-outcome [8]. Elements of the theory of andragogy emphasize the importance of autonomy and self-direction in adult learning, which contrasts strongly with the disempowering nature of some onboarding programs. Moreover, adults often take responsibility for their own learning and are more engaged when they actively participate in the process. It can therefore be very beneficial to involve the learners in planning and decision-making with respect to faculty development. Finally, we acknowledge that an overly prescriptive professional development program can lead to contrived collegiality rather than creating a culture of collaboration [9].

We aim to anchor faculty development in the context of ever-increasing change. The research landscape is advancing rapidly, student demographics and needs are shifting, and disruptive technologies continue to emerge. This evolving reality transforms the learning process from a traditional model of novices learning from experts to one that embraces concepts such as the collective exploration versus exploitation tradeoff. It also shifts the paradigm of faculty development from the expert presenter to the informed facilitator. The literature has already noted a transition from *working on faculty* to *working with faculty*. This article explores a further shift—from working with them to *actively supporting collective faculty learning*. To illustrate this point, consider the role of the facilitator as guiding the collective learning process by pointing to key facts, such as faculty evaluation guidelines, or empirically validated approaches from the literature on teaching and learning. However, the facilitator does not position themselves as an authority on the specific circumstances of early-career faculty at their institution or as someone with a definitive roadmap to success. In such areas, near-peers and co-mentors can play a critical role. As a thought experiment, imagine a scenario where the facilitator lacks first-hand knowledge of the faculty journey but has access to an oracle that provides continuous guidance on rules, guidelines, and best practices. The facilitator uses this information to make key observations and steer conversations toward meaningful and actionable insights. The question, then, is: how can one design activities that effectively foster faculty learning within these constraints?

Background

Texas A&M University is a large public institution and a member of the Association of American Universities (AAU). The College of Engineering is dedicated to achieving its mission of *Engineering Excellence at Scale* through impactful education and research. It empowers students and faculty to excel in complex, multidisciplinary environments, fostering lifelong learning and advancing knowledge. Creating an educational environment that supports student learning is a core priority and a guiding principle at our university, as it is at many academic institutions. To achieve this goal, the college promotes the adoption of empirically validated teaching methods and classroom best practices. Additionally, it is active in the *Scholarship of Teaching and*

Learning (SoTL), with faculty members actively developing innovative teaching approaches tailored to evolving student profiles, advancements in artificial intelligence, and emerging engagement strategies. The situated learning theory developed by Lave and Wenger suggests that learning is inherently social and contextual – a principle that supports our approach to cohort-based faculty development [10]. The college and university have a strong tradition of providing development opportunities for faculty members committed to becoming scholarly teachers. This includes the *Active Learning in Engineering Program* (ALEP), which offers workshops on methods and strategies for incorporating active learning into large classroom settings. Faculty can also benefit from the *Engineering Studio for Advanced Instruction & Learning* (eSAIL), which emphasizes technology integration and forward-thinking approaches to teaching. Activities facilitated by the *Institute for Engineering Education and Innovation* (IEEI) have led to broad conversations on teaching and learning. The *Center for Teaching Excellence* at the university level offers many valuable training opportunities to faculty members. These units and programs collectively enhance the quality of education at our institution, following more traditional formats.

Nevertheless, there may be opportunities to further improve the learning environment for faculty members, especially beyond the classroom. Teaching is undeniably a prime aspect of the faculty experience, yet it is only one among many responsibilities. Faculty members often navigate additional demands, including mentoring graduate students and postdoctoral fellows, establishing labs, identifying and addressing significant research problems, maintaining externally funded research programs, supporting professional societies and communities through service, and participating in shared governance at their institutions. Empirically, the breadth of training opportunities for teaching far exceeds that of other responsibilities, with grant writing likely being the second most emphasized area. Two immediate possibilities for supporting early-career faculty include adopting a holistic approach that acknowledges the many facets of faculty roles and fostering cohort-based support structures. Another essential goal of a faculty development series is to cultivate a sense of agency and ownership as faculty advance in their careers. This is especially timely, given the individualistic nature of faculty thinking and the relative disengagement level of some departments.

Case Studies

In this section, we consider three case studies where the approach outlined above has been applied. That is, learning opportunities are orchestrated through participants, with limited input from the organizers. These case studies exemplify Kolb's experiential learning cycle, where concrete experience leads to reflection, conceptualization, and active experimentation [3].

Build a Timeline: This activity is designed for assistant professors and newly promoted associate professors. In preparation, assistant professors are asked to familiarize themselves with the tenure and promotion requirements at our institution. They are then invited to collaboratively draft tentative timelines for key milestones during their probationary period. A select group of associate professors is also invited to participate as near-peer reviewers, offering constructive feedback and suggestions on the proposed timelines. The activity is typically scheduled on or shortly after September 1, coinciding with the date when promotions take effect. As such, it doubles as a timely celebration of the significant career milestone of promotion to associate

professor. Anecdotally, this is one of the most well-received activities. The resulting timelines are often highly accurate, and the input from near-peers adds credibility and depth to the exercise. Discussions in past sessions have also touched on the emotional journey of the tenure-track experience, enriching the conversation and offering support. For associate professors, the activity serves as an opportunity for reflection and a potential gateway into mentoring junior faculty. This activity can be framed as an instance of near-peer teaching (NPT).

Faculty Mentorship Awards: At Texas A&M University, the Junior Faculty Advisory Council (JFAC) is a body composed of early-career faculty members that engages periodically with The Office of the Dean and connects with early-stage faculty across the college. As part of its charge, JFAC was tasked with establishing a process to identify individuals who provide outstanding mentorship to junior faculty, regardless of track. While JFAC owns the selection process, it actively solicits input from early-career faculty across the college. Each year, *Excellence in Faculty Mentorship Awards* are presented, with recipients recognized during the annual College of Engineering awards ceremony. Additionally, each awardee is invited to deliver a prestigious *Excellence in Faculty Mentorship Lecture*, widely advertised across the college. Over the past two years, JFAC members have engaged extensively with early-career faculty, studied and reflected on what constitutes effective mentorship, established a rigorous selection process, and identified exceptional mentors for the award. This initiative also serves to disseminate best practices in mentorship across the college's fifteen departments. Attendees of the mentorship lectures have provided overwhelmingly positive feedback, and the events have motivated under-mentored or isolated faculty members to seek additional opportunities for mentorship support. The awards not only highlight the College of Engineering's commitment to valuing mentorship but also foster a growing community of mentors who share effective approaches. This initiative can be viewed as an example of project-based learning (PBL) in action.

Focus on Education: The Office of the Dean hosted an interactive session on the evolving landscape of engineering education at Texas A&M University. This event provided faculty members with an opportunity to reflect on the future directions of the College of Engineering and how best to prepare students for successful careers. The event featured twelve quick lightning presentations, each focused on a single impactful idea meant to spark conversations for subsequent discussions. The speakers were a mix of early-career scholarly teachers, outstanding instructors recognized for their teaching excellence, and faculty conducting research on the SoTL. The event then shifted into an unconference-style session, where faculty members had the opportunity to propose topics, raise questions, and share their thoughts in smaller topic-oriented groups. The goal was to help shape priorities for positioning the College of Engineering as a leader in higher education. Scheduled in early August, the event allowed faculty to reconnect with colleagues before the fall semester began. Faculty input from the session was summarized and distilled to inform the college's visioning process. While the activity was faculty-centered, its execution relied on skilled facilitators experienced in guiding discussions especially during the unconferencing portion. Approximately seventy participants attended, and post-event feedback was overwhelmingly positive. The structure of this engagement event exemplifies active learning.

Reflections

The three examples above were chosen because they align with the approach of framing faculty as learners and have demonstrated success. However, organizing some of these activities was not without challenges. This overarching approach is a cornerstone of the faculty development series within the College of Engineering at Texas A&M University.

The development workshops are designed to help faculty meet their responsibilities while pursuing their own aspirations. By addressing key topics such as research excellence, effective mentorship, impactful teaching, and strategic service involvement, the college ensures that faculty members are well-prepared and supported in the early stages of their careers. These workshops integrate insights from near peers, data-driven feedback, and the latest trends in academic excellence. Additionally, the events aim to foster connectivity among faculty members within the college. This includes building cohorts of faculty who, while not necessarily from the same department or field, are at similar stages in their progression toward promotion. Faculty with strong peer connections benefit from shared experiences and collective insights as they navigate the steps toward career advancement. A key element of the workshops is the involvement of near peers—faculty recently promoted from entry-level positions. This intentional design serves multiple goals. Near peers are often trusted by early-career faculty because they share a highly relevant perspective, being only a few years ahead in their academic journey. Moreover, invitations for near peers to participate are framed as recognition of their significant accomplishments. At Texas A&M University, faculty are expected to take on more internal service responsibilities as they advance in rank. Thus, the participation of senior faculty in the development series acts as both a gateway to college-level service and an opportunity to provide meaningful mentorship to their peers. This holistic approach not only enhances individual faculty success but also strengthens the academic community, reinforcing the college's dual mission of excellence in engineering education and research.

Conclusion

A more rigorous approach to assessment is highly desirable to bring greater credibility to the proposed methodology. At the same time, we recognize that this approach transposes well-established concepts from teaching and learning into the context of faculty development. It is an intriguing intellectual exercise to view the facilitator as a provider of a meaningful framework in which faculty can share experiences, build a community, and learn collectively. Moreover, there are clear parallels between active learning in faculty development and in classroom teaching. For instance, organizing an active learning session often requires significantly more effort than preparing a traditional slide presentation. When successful, participants are typically unaware of the effort involved in planning the session; however, if the activity falls short, the organizer often bears the blame. This sentiment may resonate with faculty members who regularly engage in active, experiential, or project-based learning. Despite these challenges, the benefits of such approaches appear to far outweigh the drawbacks.

References

[1] Jack Mezirow, *Transformative Dimensions of Adult Learning*, Jossey-Bass, 1991.

[2] Milton D. Cox and Laurie Richlin, *Building Faculty Learning Communities: New Directions for Teaching and Learning*, Number 97 in 15. John Wiley & Sons, 2004.

[3] David A. Kolb, *Experiential Learning: Experience as the Source of Learning and Development*, FT press, 2014.

[4] John C. Norcross and Marvin R. Goldfried, *Handbook of Psychotherapy Integration*, Oxford Series in Clinical Psychology. Oxford University Press, USA, 2005.

[5] Fred Hebert and Marty Loy, *To improve the academy*, chapter 13: The Evolution of a Teacher-Professor: Applying Behavior Change Theory to Faculty Development, pp. 197–207, Number 1 in 20. Wiley Online Library, 2002.

[6] Patricia A. Lawler, "Teachers as adult learners: A new perspective," *New directions for adult and continuing education*, vol. 2003, no. 98, pp. 15–22, 2003.

[7] James A. Gregson and Patricia A. Sturko, "Teachers as adult learners: Re-conceptualizing professional development.," *Journal of Adult Education*, vol. 36, no. 1, pp. 1–18, 2007.

[8] Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action*, Basic Books, 1984.

[9] Andy Hargreaves and Ruth Dawe, "Paths of professional development: Contrived collegiality, collaborative culture, and the case of peer coaching," *Teaching and teacher education*, vol. 6, no. 3, pp. 227–241, 1990.

[10] Jean Lave and Etienne Wenger, *Situated Learning: Legitimate Peripheral Participation*, Cambridge University Press, 1991.

[11] Office of the Provost, "Guide to best practices in faculty retention," Columbia University.

[12] Lev S. Vygotsky, *Mind in society: The development of higher psychological processes*, vol. 86, Harvard university press, 1978.

[13] Etienne Wenger, *Communities of Practice: Learning, Meaning, and Identity*, Cambridge University Press, 1999.

[14] Robert Boice, *The New Faculty Member: Supporting and Fostering Professional Development.*, Jossey-Bass, 1992.

[15] Ann Austin, "Preparing the next generation of faculty: Graduate school as socialization to the academic career," *The Journal of Higher Education*, vol. 73, no. 1, pp. 94–122, 2002.

[16] Carole Bland, Anne Taylor, Lynn Shollen, Anne Marie Weber-Main, and Patricia Mulcahy, *Faculty Success through Mentoring: A Guide for Mentors, Mentees, and Leaders*, R&L Education, 2009.

[17] Douglas Robertson, "Establishing an educational development program," *A guide to faculty development*, pp. 35–52, 2010.

[18] George Kuh, Jillian Kinzie, John Schuh, and Elizabeth Whitt, *Student success in College: Creating Conditions that Matter*, John Wiley & Sons, 2011.