

Board 123: Work in Progress: A Case Study of a Community of Practice Model Fostering Faculty Scholarship of Teaching and Learning of the Entrepreneurial Mindset

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Short Abstract

This work-in-progress paper provides insights from facilitators and participants of a Community of Practice (CoP) focused on the Scholarship of Teaching and Learning (SoTL) in engineering, addressing the challenge of supporting faculty in integrating an entrepreneurial mindset (EM) in engineering pedagogy. Individual interviews of four faculty were conducted. We found that faculty experienced both barriers and benefits during their participation in the CoP. The evolving expectations and responsibilities faced by faculty members in the realm of engineering education continue to be a challenge. Institutional and structural supports are needed to address these barriers to SoTL.

Introduction

This work-in-progress paper discusses a case study conducted within a Community of Practice (CoP) focused on the Scholarship of Teaching and Learning (SoTL) in engineering at Arizona State University (ASU). While there are diverse focuses within SoTL related to engineering pedagogy, this paper specifically examines how a group of engineering faculty members engaged in exploring the incorporation of an entrepreneurial mindset (EM) in their teaching. There is a growing need to incorporate EM into classrooms and to support faculty in doing so. Tomorrow's engineers must possess not only technical expertise, but also an EM to navigate complex, dynamic, and innovative environments.

The cultivation of an EM in engineering education is seen as crucial for preparing future engineers to understand the global market, align their careers with diverse business models, and apply technical knowledge in real-world scenarios [1], [2]. Entrepreneurial thinking among engineering students equips them with the skills and mindset necessary for innovation and leadership in multidisciplinary contexts. The EM extends beyond conventional technical expertise, encompassing a holistic approach that begins with curiosity about our ever-changing world, connecting various disciplines and ideas to gain insights, and ultimately focusing on creating value for society, communities, and customers [1].

To gain a deeper understanding of how faculty members' capacity to incorporate entrepreneurial principles into their classrooms was influenced by their participation in a CoP, our initial research question sought to examine the strategies, challenges, and potential benefits associated with the CoP model. However, as the CoP progressed, our focus shifted toward the exploration of faculty members' motivations and experiences in the realm of scholarship within their faculty roles. As participants implemented EM approaches in their classrooms and expressed interest in

engaging with our CoP for support, challenges became evident for both facilitators and participants during the extension of this work into research and publication. Past studies have also highlighted barriers faculty members encounter in engaging with the SoTL, including time barriers, lack of knowledge around scholarship, and lack of institutional support for education research [3]-[5].

We were interested in examining the following research questions:

1. What are the experiences of faculty participants engaged in a SoTL CoP focused on integrating EM in engineering pedagogy?
2. What are the challenges of fostering SoTL in engineering institutions?

This work-in-progress paper provides valuable insights into the experiences of faculty members who participated in a CoP focused on integrating an EM into their instructional practices using SoTL. The exploration of these experiences serves as a guide for the advancement of effective faculty development programs. By investigating the challenges and benefits encountered by participants, the study aims to inform the design and facilitation of similar professional development communities related to scholarship and SoTL.

Background

Scholarship of Teaching and Learning

Scholarship of Teaching and Learning (SoTL) has emerged as a critical focus for educators in engineering education striving to enhance pedagogical practices and student outcomes. Scholars such as Felder and Brent have emphasized the importance of disciplined inquiry into teaching methodologies to improve the learning experiences of engineering students especially related to active learning [6], [7]. SoTL allows educators to systematically investigate effective instructional strategies and assess their impact on student learning. Previous research has underscored the transformative potential of SoTL emphasizing its role in shaping curricular design and facilitating evidence-based teaching approaches [8]. Reflective practice and practice dissemination, two key components of SoTL, holds the potential to accelerate growth not only at the micro (classroom) level but also at the meso (institutional) and macro (national and international) levels, bridging the gap between theoretical knowledge and practical application [9].

However, SoTL is not without its challenges. Despite many benefits that emphasize a disciplined inquiry, bridging theoretical and practical knowledge, SoTL presents challenges including time constraints and the need for institutional recognition. Researchers often acknowledge that faculty often grapple with time constraints, as the demands of research, teaching, and service roles compete for their attention [10], [11]. Additionally, the lack of institutional recognition and reward systems for SoTL efforts continues to persist and hinder faculty motivation and

participation [4]. Many researchers emphasize the need for a cultural shift within academic institutions to prioritize and incentivize the scholarship of teaching [4], [5]. A Community of Practice (CoP) approach can serve as a collaborative space for faculty professional development, with Teaching and Learning Centers uniquely positioned to support faculty professional development efforts towards scholarships with these communities [3].

Communities of Practice for Faculty Professional Development

Communities of Practice (CoPs) have gained prominence as collaborative models for fostering the exchange of teaching innovations and best practices among engineering faculty. CoPs are social structures where members collaboratively engage in a shared domain of interest, cultivating collective expertise that extends beyond individual contributions [12], [13]. The utilization of CoPs in faculty development is rooted in the belief that sustained, collaborative interactions among educators can lead to enhanced teaching methodologies and a deeper understanding of disciplinary content [14], [15]. The communal nature of CoPs allows instructors to engage in reflective practices, drawing from the diverse experiences of their peers to refine teaching strategies and improve student outcomes [15]. CoPs have been found to be effective models for faculty professional development in engineering [16]. Considering the benefits and effectiveness of CoPs as professional development models for faculty, these collaborative spaces lay the foundation and support structures for faculty to implement instructional changes. This includes embedding EM into their curriculum.

Methods

A CoP was established by the Ira A. Fulton Schools of Engineering Learning and Teaching Hub to provide a space for faculty members with a shared interest in the Scholarship of Teaching and Learning (SoTL) and the integration of EM to meet regularly, discuss implementation and research around EM in their classrooms, with the ultimate goal to submit research contributions to the 2024 American Society for Engineering Education (ASEE) annual conference. The CoP meetings were held virtually via Zoom throughout the fall 2023 and spring 2024 semesters at Arizona State University. Meetings centered on providing resources related to scholarship, EM activities and assessment, facilitating writing groups, and helping to create timelines and structures needed for publication. Five participants initially joined the CoP and two faculty facilitators.

CoP participants were invited via email to participate in this research study with an invitation to an individual, semi-structured virtual interview via Zoom during spring 2024. Four participants consented to participate in the interviews. The main goal of the interview questions was to understand why faculty joined the group, how they felt about their time in it, what kept them involved, any obstacles they encountered, and what could have made their experience better.

Qualitative data analysis is being conducted through thematic analysis, which is “a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set” [17, p. 57]. Finally, two faculty facilitators were asked to provide their reflections as part of the subsequent results and discussion section.

Results and Discussion

Preliminary results from participant interviews revealed emerging themes that illuminate the dynamics of engagement for participants in the CoP. Similar to other researchers [5], the barriers identified encompassed concerns about time and workload constraints, compensation issues, and uncertainties surrounding expectations related to scholarship.

“Sadly, my academic unit does not seem to value [entrepreneurial mindset and scholarship of teaching and learning] at all. I routinely get classes swapped and re-scheduled at the last moment - many times preventing me from even attending the Zoom meetings,” shared Interview Participant 4 regarding the time and structural barriers.

Interview Participant 1 also noted how some of the collective sessions were “demotivating” due to the varied interests of participants and the approach other members took towards SoTL. “There were some sessions where [another member’s approach] was being defensive and questioning the status quo of the very session” and they shared that this felt “less productive” for the group setting.

Participants noted the pivotal role of resources, frameworks, and the willingness of facilitators to overcome these barriers. Additionally, a distinct interest in fostering individual mentor/mentee relationships for scholarly pursuits emerged, indicating a desire for personalized support within the CoP.

“But personally, I prefer to work one-to-one, like an advisor-advisee relationship. I feel like I will make more progress than [at] the team level,” shared Interview Participant 3. Similarly, Participant 1 noted the need for personalized, individual collaboration with another co-author to sustain their efforts, sharing, “[The CoP meetings are] like a sprint. What I’m thinking of is a marathon. I cannot see myself sustaining my interest and investment if it is a long-term project.”

Conversely, several benefits that participants found emerged. Access to valuable resources and frameworks, coupled with the social and community aspects, were acknowledged as positive influences. Interview Participant 2 shared, “I can count people who I really interact with - about 5. So, what is the problem there? There's not enough interaction... For me, the [community of practice] gives me the importance of seeing people and talking to people. You know, synergy can be built in there and so forth. So that's an advantage.”

Moreover, the CoP served as a platform for growing academic portfolios, particularly for those beginning their faculty career. The emerging theme of sustained motivation and engagement revolved around the relationships participants built within the Hub or through past professional development initiatives, emphasizing the significance of a supportive community for continued engagement.

The reflections from the CoP facilitators emphasized the significance of developing a deeper understanding of their unique CoP audience. This includes understanding their audience's motivations and barriers, as well as their needs and readiness to engage in SoTL while incorporating EM in their classrooms. Notably, CoP members entered this opportunity with varying levels of familiarity and application of SoTL and EM, introducing a challenging range of perspectives. Furthermore, the facilitators recognized a disconnect in motivations among members, which could impede sustained engagement and collaboration. The establishment of a shared understanding within the group regarding the benefits of this collaborative work may address this challenge. Additionally, facilitators are considering establishing smaller subgroups based on individual interests.

Recognizing ongoing challenges, facilitators recognized concerns regarding how SoTL is perceived, rewarded, and integrated within current academic frameworks, including faculty expectations related to research, teaching, and service. A facilitator reflected, "If the reward structures were based on being 'use-inspired', SoTL work would be just as highly valued as the new airplane structures, batteries, or energy technologies that colleagues are creating."

In the broader context of engineering education, these findings highlight the ongoing challenges faced by faculty members wishing to pursue research [10]. The evolving expectations and responsibilities demand institutional and structural support to alleviate barriers to SoTL. As this work-in-progress study takes shape, it becomes evident that cultivating a supportive community, addressing individual needs, and providing strategic resources are essential elements in enhancing the effectiveness of a CoP model in supporting scholarship and implementing EM in the classroom. Ultimately, this exploration calls for a thoughtful reevaluation of current practices between research and practice [18] and the implementation of tailored solutions to foster a more supportive and engaging environment for faculty.

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