

WIP: Faculty Developers' perceptions of Engineering Instructional Faculty engagement in instructional professional development at HSIs

Abstract

This work-in-progress paper details preliminary results from a qualitative study exploring faculty developers' interactions with and perceptions of engineering instructional faculty (EIF) at Hispanic-Serving Institutions (HSIs). One potential resource for supporting EIF's educational innovation efforts is their institutions' center for teaching and learning (CTL). Through CTLs, and similarly named offices, faculty developers provide EIF and other faculty with professional development opportunities, such as pedagogy workshops, consultations, and seminars. By engaging in services provided by faculty developers, EIF can draw on new ideas, energy, and perspectives for instruction that they can incorporate into their beliefs and practices [1]. This is particularly relevant at HSIs, which play a crucial role in enhancing the education of Latinx engineering students. This study aims to understand HSI faculty developers' perceptions of EIF's motivation to participate in professional development programming around instruction. Leveraging the self-determination theory of motivation, our preliminary results suggest that faculty developers recognize how extrinsic and intrinsic factors play an important role in EIF's decisions to engage in instructional development programming. Based on our preliminary results, we encourage the faculty development community to leverage the identity of EIF as problem-solving engineers, identify and correct misconceptions about the role of faculty developers, and be intentional about how their programming responds to the factors intrinsically and extrinsically motivating EIF.

Motivations and Background

Engineering Instructional Faculty (EIF) play an essential role in changing the landscape of engineering education at HSIs through their work within their courses and across their departments and institutions. For this study, we define EIF as professional-track engineering faculty with full-time, fixed-term positions with teaching as their primary responsibility. HSIs, enrolling 67% of Latinx students in higher education, play a crucial role in enhancing the education of Latinx engineering students, a population routinely minoritized and excluded in engineering. HSIs are uniquely positioned to enhance Latinx students learning through inclusive curricula, retention initiatives, and student-centered support programs [2]–[5]. EIF within HSIs contribute to these efforts due to their increased level of contact with students, as they often teach 3–4 classes a semester [6], [7]. Consequently, EIFs are instrumental in innovating engineering education at HSIs [2].

One approach EIF can use to receive support for the innovative work they do within engineering education at HSIs is through engagement with faculty development programming, often offered through Centers for Teaching and Learning (CTLs) at their institutions. CTLs, and similar offices and groups, provide faculty with a range of professional development opportunities, through various services such as pedagogy workshops, consultations, and other programming. Generally, a CTL's mission is to “advance teaching excellence, foster innovation, and translate educational research into practices [...] while supporting faculty through a collaborative approach” [8]. By participating in instructional professional development, EIF can draw on new ideas, energy, and perspectives to incorporate into their beliefs and practices [1].

However, studies suggest that engineering faculty broadly do not regularly draw upon the resources available from CTLs to help them make changes within their programs [9]. The extent of this disengagement for EIF specifically is unclear, and so too is the extent to which CTLs intentionally support EIF. Some prior research suggests that EIF are more apt to engage in faculty development than their tenure and tenure-track peers, but most faculty development programming does not target EIF [10]. Therefore, further examining the current relationship between EIF and faculty developers is crucial to understanding and enhancing faculty developers' approaches to working with EIF. Understanding faculty developers' relationships with EIF and their perceptions of EIF's motivation to participate in their programming is important because it drives their design of faculty development programming. By documenting these perceptions, the community can then seek to better align with the motivational factors of EIF, enabling CTLs and faculty developers to better engage with EIF and support their goals in and outside of the classroom. Therefore, this study explores how faculty developers perceive EIF at HSI's motivation to participate in professional development programming offered by their institution's CTL, leveraging Ryan and Deci's self-determination theory of motivation [11].

Theoretical Framework

To understand faculty developers' perspectives on what motivates EIF at HSIs, we leverage the self-determination theory (SDT) of motivation [11]. SDT posits that people innately desire growth and engage in activities that help them achieve that growth. In the SDT continuum (Figure 1), faculty motivation to engage in instructional professional development spans amotivation (i.e., lacking the intention to act) to intrinsic motivation (i.e., inherent desire to act based on interests and enjoyment), with varying levels of extrinsic (i.e., externally regulated) engagement in between. This framework has previously been used to explore the motivations of science and engineering faculty to engage in teaching professional development [9].

For this study, in response to patterns observed in the data, we combined identified regulation, integrated regulation, and intrinsic regulation to account for all regulation styles that were somewhat or predominantly internal. This adaptation of the framework led to the following motivation categories shown in Figure 1. Ultimately, we focus on how faculty developers describe EIF's engagement as reflecting either external regulation (i.e., behaviors performed to satisfy an external demand or reward), introjected regulation (i.e., behaviors performed to avoid guilt or anxiety or attain ego enhancements), and internal regulation (i.e., behaviors performed due to identified, integrated, and intrinsic forms of regulation).

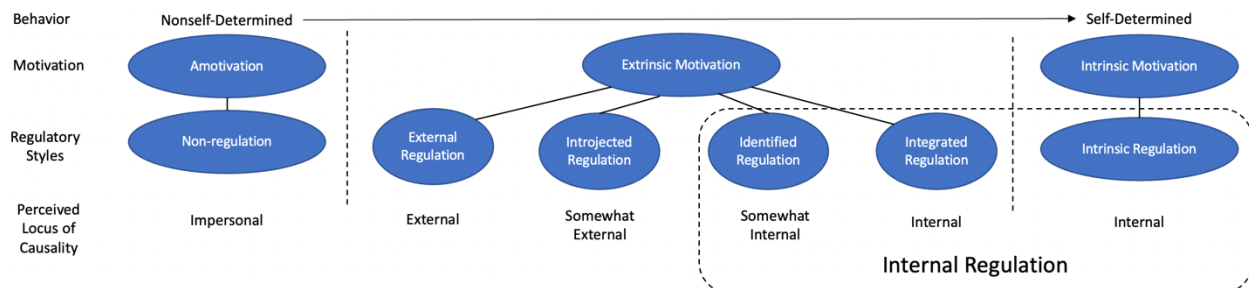


Figure 1: Adapted Self-Determination Framework

Methods

As part of a larger study exploring EIF experiences at HSIs, interviews were conducted with four faculty developers from CTLs at different HSIs regarding their firsthand experiences working

with EIF at their institutions. Researchers de-identified, transcribed, and coded the interviews using self-determination theory as the guiding theoretical framework. The interviews were analyzed to answer the following question:

1. *What are faculty developers' perceptions of the intrinsic and extrinsic factors influencing EIF's participation in instructional professional development?*

This study was conducted at four HSI from across the Southwestern and Southeastern United States, including two 4-year public and two 4-year private institutions. After obtaining IRB approval, an initial online search was conducted to identify HSIs with CTLs and engineering programs that employed instructional or teaching-track faculty. A screening survey was sent to the faculty developers listed on the institutional websites of the selected institutions. Four faculty developers were recruited, one at each institution.

Semi-structured interviews were completed with all participants. These 30 to 45-minute interviews focused on learning about the participants and their experiences working with EIF at their institution. The interviews consisted of five questions asking participants to describe a recent interaction with an EIF, their relationship with EIF, the types of resources and services they have available to EIF, and the challenges they face. These interviews were audio-recorded for subsequent transcription and analysis. Each participant was given a pseudonym.

The authors coded the interviews for instances where faculty developers expressed their perception of EIF's motivation to engage or not engage in professional development using the adapted SDT continuum categories: external, introjection, and internal regulation [11]. It is important to note that the data do not provide insight into EIF's personal values or needs; instead, they are FD's perceptions of whether the EIF they had interacted with exhibited extrinsic or intrinsic motivation. Further, these findings are based on the experiences of a limited sample.

Results

External Regulation

In this study, faculty developers emphasized how they perceived two external regulation factors motivating EIF to participate in instructional professional development: 1) EIF's desire to comply with job requirements, and 2) incentives, e.g., certificates, additions to CVs, or financial awards. Overall, faculty developers perceive EIF participation in programming as low, stating that only a handful attend their programming. Carol, a faculty developer at a 4-year public HSI, describes how, at her institution, EIF that teach hybrid courses are required to participate in training to teach in a hybrid modality. She noted how they "see a lot of engineering folks in our provost hybrid training. It's a little different in that part of it is, there's an impetus for them participating in that training because it allows them to get the certification they need to teach in the hybrid modality." Similar sentiments are shared by Sam, a faculty developer at another 4-year public HSI. Sam mentions that participation in CTL programming appears provoked by annual reviews, where faculty may need to show their participation in professional development. As Sam states, "in your annual reviews it should be counted that you are in this journey of lifelong professional development, that you're attending these instead of just doing the minimum. So, it also signals that you are developing yourself as an instructor professionally."

Furthermore, EIF participation is perceived to increase when faculty developers use incentives. Participants noted how they often provide certificates of completion (Sam), financial support

(Carol and Matt), and promote the ability to bolster EIF's CVs (Sam). Sam states that "there are certain motivators, incentives that if being offered at the right time, that you can also recruit faculty who may not have that intrinsic motivation to begin with." Carol expressed similar sentiments; however, she notes how faculty developers hope these incentives will foster better relationships between the CTL and EIF. Similarly, Matt, a faculty developer from a 4-year private HSI, hopes that these incentives "helps them commit to workshops."

Introjected Regulation

When considering introjected forms of regulation, faculty developers perceive EIF self-perception and desire for recognition as motivating EIF to engage in instructional development programming. Ilsa and Carol described instances where self-perception has hindered EIFs' participation in CTL programming. Ilsa, a faculty developer at a 4-year private institution, explains how "I definitely think that there's some ego involved too because coming to someone about teaching and learning does require a recognition that you don't know it all and that you need help to do things better. Sometimes they might not even know that they need help in a certain area." Similar sentiments were shared by Carol, who mentions that faculty developers must frame topics that are "not easily measured [and] very emotion-based" to EIF who tend to reside in a "much more tangible, measurable headspace." This need to tap into EIF's self-perception and desire for recognition, beyond traditional incentives, was noted by Sam, who stated, "I think with the right incentives, because sometimes a certificate, the completion, may not be enough incentive for them to do something, but maybe [...] competitive reward around scholarship of teaching or learning, or some other channels of recognition would expand our outreach to our engineering instructional faculty."

Internal Regulation

Some of the internal factors that faculty developers perceive motivate EIF's participation are curiosity and a propensity toward lifelong learning. The strongest internal factor developers perceive is EIF's drive to do better for their students because teaching is their passion. However, faculty developers also noted EIF's misconceptions about the role of CTLs and faculty developers, negatively impacting their engagement.

Sam described how "they are curious, curiosity is a big motivator, and they want to improve themselves because there's always room for improvement." Faculty developers noted that, beyond curiosity, one driver of EIF's desire to learn was a need to manage their workload. In one example, Carol described an interaction with an EIF who "had an increased teaching load and realized very quickly that she couldn't continue to operate [as she had previously] in providing feedback [...], all the interactions and touchpoints with students, as the number of students she was responsible for was growing. And so, we were discussing ways to maintain some of that sense of connection to her students while making the feedback load a bit more manageable."

Sam further describes how another driver is EIF's desire to support students, "like many of [her] faculty, engineering instructional faculty also seek advice from [her] center on how to engage [their] students, on how to retain them, and how to achieve student success." As Carol put it, EIF have "a deep personal and professional sense of commitment to doing good work. And I think that that comes out of the knowledge that they're an instructor at an HSI." But "with professors in practice, because teaching is their job, that's what they do on a day-to-day basis, these are things that they think about even before. I don't have to bring it up. They are well aware (Ilsa)."

However, a robust internal regulation towards independent problem solving is also perceived by faculty developers as negatively contributing to EIF participation in their programming. As explained by Ilsa, “The thing with engineering faculty is that they’re engineers, right? They’re problem-solvers by nature. They might see a problem, and then they try to solve it themselves, or they try and find information on their own on how to solve the problem, right? Because that’s just the nature of who they are.” Additionally, developers sense misconceptions about their role, that “A lot of faculty don’t understand that [developers are] not there to critique your teaching. [Faculty] don’t understand that my role is to help them to communicate the concepts to students in a way that is meaningful and that they will understand it better and they can engage with the content more. (Ilsa)”

Implications and Discussion

Based on a comparison with our prior work examining factors impacting faculty agency to engage in professional development, the perspectives of these faculty developers align with those of EIF [12]. Our prior work similarly noted the connection between participation in instructional professional development and EIF’s desire to support students. However, the emphasis on individualized development described by the faculty developers differs from the emphasis placed by the interviewed EIF on the need for community as a central basis for pursuing development. Both recognized the impact of the HSI context and the important role of resources, e.g., finances, in engaging EIF in professional development.

By examining the perspectives of faculty developers, however, we note four additional insights that did not immediately arise from our prior engagement with EIF in [12]. First, as developers of engineering faculty, we have a unique opportunity to leverage the identity of engineers as problem-solvers. Second, there is a pressing need to identify and correct misconceptions about the role of faculty developers and CTLs, if we wish to increase engagement. Third, as programs design their incentive structures, they must balance meeting needs and providing incentives. Financial support is not just an incentive for many instructional faculty but a necessity to engage, given historical funding models prioritizing tenure-track faculty support. Finally, developers must be intentional about how our programming responds to the intrinsically motivating factors of EIF. As in creating inclusive environments for students [13], faculty development must similarly shift to being more assets-based, recognizing how EIFs are intrinsically motivated. From the perspective of these faculty developers, extrinsic factors bring EIF in, but intrinsic factors keep them there. As Carol expressed, “despite the fact that there’s an external incentive or pressure to participate [...], we still approach those interactions as an opportunity to then further inspire continued relationship with us. So, you come for the certification, but our hope is that you will see value and continue to come back and engage more.”

Conclusion

This study examines preliminary qualitative results exploring faculty developers’ interactions with and perceptions of engineering instructional faculty (EIF) at Hispanic-Serving Institutions (HSIs). Our preliminary results suggest that faculty developers recognize how extrinsic and intrinsic factors play an important role in EIF’s decisions to engage in faculty development programming. Identifying these areas is crucial as we work to help faculty developers and researchers find ways to initiate or strengthen relationships between EIFs and CTLs. Through improving these relationships, EIFs can be further equipped to foster multidisciplinary and inclusive engineering curricula to support their students at HSIs.

Acknowledgement

This material is based upon work supported by the National Science Foundation under Grant Numbers 1953560 and 1953586. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

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