

## **Impact of Faculty Development Workshops on Instructional Faculty at Hispanic-serving Institutions**

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As an assistant professor of engineering education at Florida International University, Dr. Alexandra Coso Strong works and teaches at the intersection of engineering education, faculty development, and complex systems design. Alexandra completed her doctorate in aerospace engineering at Georgia Tech in spring 2014. Prior to attending Georgia Tech, Alexandra received a bachelor's degree in aerospace engineering from MIT (2007) and a master's degree in systems engineering from the University of Virginia (2010). Alexandra comes to FIU after completing a postdoctoral fellowship at Georgia Tech's Center for the Enhancement of Teaching and Learning (CETL) and three years as a faculty member at Olin College of Engineering in Massachusetts. Alexandra's research aims to improve the design of educational experiences for students by critically examining the work and learning environments of practitioners. Specifically, she focuses on (1) how to design and change educational and work systems through studies of practicing engineers and educators and (2) how to help students transition into, through and out of educational and work systems.

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An Assistant Professor at The University of Texas at El Paso, Dr. Meagan R. Kendall is helping develop a new Engineering Leadership Program to enable students to bridge the gap between traditional engineering education and what they will really experience in industry. With a background in both engineering education and design thinking, her research focuses on how Latino/Latina students develop an identity as an engineer, methods for enhancing student motivation, and methods for involving students in curriculum development and teaching through Peer Designed Instruction.

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Gemma Henderson is a Senior Instructional Designer for the LIFE (Learning, Innovation and Faculty Engagement) team in Academic Technologies at the University of Miami, Coral Gables. Gemma partners with faculty members, academic units, and other university stakeholders to create and assess innovative, effective, and meaningful learning experiences, through learner-centered pedagogies, differentiated teaching, and emerging educational technologies. She has facilitated faculty development initiatives, communities and events in online course design, formative assessment, narrative techniques and 3-D technologies in undergraduate education. Since Fall 2016, in partnership with the College of Engineering and the LIFE team, Gemma designed and supported faculty development workshops in active learning pedagogies, provided regular consultations and also joined the UM team at Olin College's 2017 Collaboratory Summer Institute. Gemma is a recent graduate from the MSc Digital Education program at the University of Edinburgh.

### **Dr. Ines Basalo, University of Miami**

Dr. Basalo is an Assistant Professor in Practice in Mechanical and Aerospace Engineering at the University of Miami. Prior to joining the University of Miami in 2014, she worked as an adjunct professor at Columbia University and the Cooper Union in New York City. She received her PhD from Columbia University in 2006, where her research focused on the mechanical and frictional properties of articular cartilage. Dr. Basalo's teaching experience includes Thermodynamics, Computer Graphics, Materials Science and laboratory courses. Since 2015 she has been actively involved in the University of Miami College of Engineering's "Redefining Engineering Education" strategic plan on educational innovation. As part of this plan, Dr. Basalo worked with 2 other faculty members to organize inaugural Senior Design Expo in May 2017, an exposition where over 200 senior students showcased their Capstone projects to the University of Miami community, alumni and industry leaders. Starting in 2016 and through her work with the University of Miami's Engaged Faculty Fellowship program, Dr. Basalo incorporated an academic service component into the final project for a sophomore-level Measurements Lab course.

# **Impact of faculty development workshops on instructional faculty at Hispanic-serving institutions**

## **Abstract**

This research paper will examine the experiences of instructional, non-tenure line (non-tenure-track/tenured) faculty at Hispanic-Serving Institutions (HSIs) during and after participation in a multi-institutional faculty development workshop series. As engineering programs increase in size, the demand for instructional, non-tenure track faculty increases. These instructional faculty represent a large percentage, from 25% to over 50%, of the faculty members at both two and four-year institutions. Given their high number of contact hours with engineering students across a curriculum, there exists an opportunity to engage instructional engineering faculty in educational reform and broadening participation efforts. However, research is limited on the effectiveness of different faculty development models for these faculty. Through the analysis of survey data, the findings suggest that the workshop series described in this paper provided a venue for community building among participants and exposure to new techniques and ideas. Overall, this paper makes visible the experiences of these instructional faculty. Specifically, the findings describe how the workshop supported instructional faculty to take strides towards improving the learning experiences of their students. The results have the potential to inform the creation and refinement of faculty development programming at HSIs, within engineering colleges more broadly, and in conjunction with programming created by the American Society for Engineering Education. In addition, the findings will enable further research on this under-explored group within the engineering faculty.

## **Motivation**

Unlike Tribal Colleges and Universities and Historically Black Colleges and Universities, few Hispanic-Serving Institutions (HSIs) were specifically established to educate Hispanic or Latinx students [1]. Rather, HSIs are defined by the number of students that identify as having a Hispanic or Latinx ethnicity [2] and, therefore, largely emerge due to shifts in regional and national demographics. Consequently, most HSIs are located in geographical regions with higher Latinx populations, but many were Primarily-White Institutions (PWIs) at their inception. With the growth in the Latinx population in the United States, and the fact that over 60% of Latinx students pursue higher education at an HSIs, HSIs are uniquely situated to be able to impact the education of these students due to their Latinx population density and experience educating Latinx students [3], [4]. However, due to the history of these institutions, many have to work diligently to address the unique characteristics of their changing student population [1], [5]. Within engineering, HSIs are at the forefront of innovating programs and curriculum for Latinx engineers, successfully graduating more Latinx engineers than non-HSIs [6]. Focusing efforts at these institutions has the potential to increase representation of the Latinx population in engineering.

Faculty play a critical role in educational change efforts and within the day-to-day support of students' self-efficacy and self-regulated learning behaviors [7], [8]. For Latinx students, in particular, faculty support is a key factor in student retention [9]. Faculty support students by serving as role models and mentors, which if maintained, particularly outside the classroom, can contribute to higher student satisfaction and persistence to graduation [10].

Within engineering programs at HSIs, and engineering programs more broadly, instructional, non-tenure track faculty comprise nearly 14% of the faculty [11]–[13]. In many cases, these faculty fill teaching roles in lower-level courses or provide industry experience in upper-level courses [13], [14]. Though utilization of instructional faculty varies by institution and department, at both two and four-year institutions, these faculty represent a large percentage, from 25% to over 50%, of the total number faculty members when considering all departments, including those outside of engineering [14], [15]. As engineering programs increase in size, the demand for instructional faculty will likely increase to these institution-wide percentages or higher. Historically, instructional faculty have been under-resourced and afforded limited representation in institutional governance, hampering their engagement in educational innovation [16], [17]. As a result, there is a need to better understand the experiences of and support for this population of faculty.

Given their high number of contact hours with engineering students across a curriculum, and particularly in the first years where retention is most important, there exists an opportunity to engage instructional engineering faculty in educational reform and broadening participation efforts. This instructional faculty engagement is particularly important at HSIs, where not all faculty share their students' Latinx ethnicity [18] and must find alternative means of developing relationships with their students and embrace culturally relevant practices [5]. The purpose of this paper is to examine the experiences of instructional, non-tenure track faculty at Hispanic-serving institutions (HSIs) during and after participation in a multi-institutional, multi-day faculty development workshop series. This exploratory study seeks to lay the foundation for future work into effective faculty development models for this under-explored population of engineering faculty at HSIs.

## **Methods**

The study described in this paper is part of a larger study around curricular innovation and transformation within engineering at HSIs. Given the central role of faculty in curricular transformation efforts, we sought to explore three research questions:

- (1) Who are instructional faculty at HSIs?
- (2) How did the instructional faculty experience a multi-day faculty development workshop series? and
- (3) To what extent did the workshop series impact the instructional practices of the instructional faculty?

The subsequent sections provide a brief overview of the faculty development opportunity, participant information, as well as the data collection and analysis methods used.

### *Two Multi-day Faculty Development Workshops*

In the spring of 2018, two Rethinking Engineering Education workshops, focused on re-imagining engineering education at HSIs, were held in different regions of the country, with a follow-up workshop held at the ASEE conference. These workshops targeted engineering educators from HSIs, who are not necessarily engaged in engineering education research, as part of a larger project to develop a research agenda for HSIs. These workshops were developed in response to the National Science Foundation's (NSF) Dear Colleague Letter: *Improving Undergraduate STEM Education in Hispanic-Serving Institution*. The workshops were designed to uncover the non-obvious needs and existing successes at HSIs that can be addressed and amplified in future NSF initiatives to improve undergraduate engineering education. As such, the authors of this paper, who served as workshop facilitators, approached the workshop design from an exploratory perspective, wanting to learn from and with the attendees. In addition, the workshops sought to provide a faculty development opportunity for attendees, exposing them to three innovative approaches to supporting student learning that are independent of specific pedagogies or tools: (1) intrinsic motivation, (2) students as empowered agents, and (3) design thinking.

The first, intrinsic motivation, allowed participants to reflect on factors within their courses that contribute to students' motivation and ultimately, their academic performance [19]. During the workshops, participants worked individually and in small groups [20] to explore different approaches to supporting students' sense of competency about the topics within the course, autonomy to control their own learning, and relatedness to others around them and the engineering topics within the course. As agents of their own learning, students are self-directed and empowered learners who actively construct their understanding of concepts, reflect on learning experiences to develop strategies for approaching problems in the future, and seek out help as needed [21], [22]. Within the workshops, participants engaged with agency both from the perspective of students as agents of their own learning and of educators as agents of change within their institution to explore internal and external factors impacting an individual's sense of agency. Lastly, the principles of design thinking (e.g., understanding the problem, building empathy for all stakeholders, tolerating ambiguity, practicing iteration) were reframed to focus on the design of a course and/or the broader learning environment [23]. Participants engaged in a learner-centered design process to design and reflect on activities that would positively impact all of their students' sense of motivation and agency [8]. Ultimately, the workshops were designed to leverage these approaches to facilitate in-depth reflection and enable participants to prototype ideas in their own context [20]. For example, these ideas provided a lens through which participants could examine their context, the educational experiences of their students, and their own beliefs and values.

### Participants

Thirty-six engineering educators (Figure 1) from thirteen HSIs across the southern United States (from Arizona, New Mexico, Texas, and Florida) attended one of two regional workshops held at the University of Texas, El Paso (TX workshop) and the University of Miami (FL workshop). Participants included 14 Tenure-line faculty, 16 Instructional Faculty (full-time, non-tenure track and professional faculty), and 6 others (part-time lecturers, administrators, and staff). Twenty-five percent of attendees identified as women and 39% identified as Hispanic (the same at both workshops). Five institutions were represented by the 18 participants at the Florida workshop and eight institutions by the 18 participants at the Texas workshop. Across both workshops, there were two private 4-year institutions, eight public 4-year institutions, and three two-year institutions. Each participant was provided with meals during the workshops and a stipend to offset their time and transportation costs.

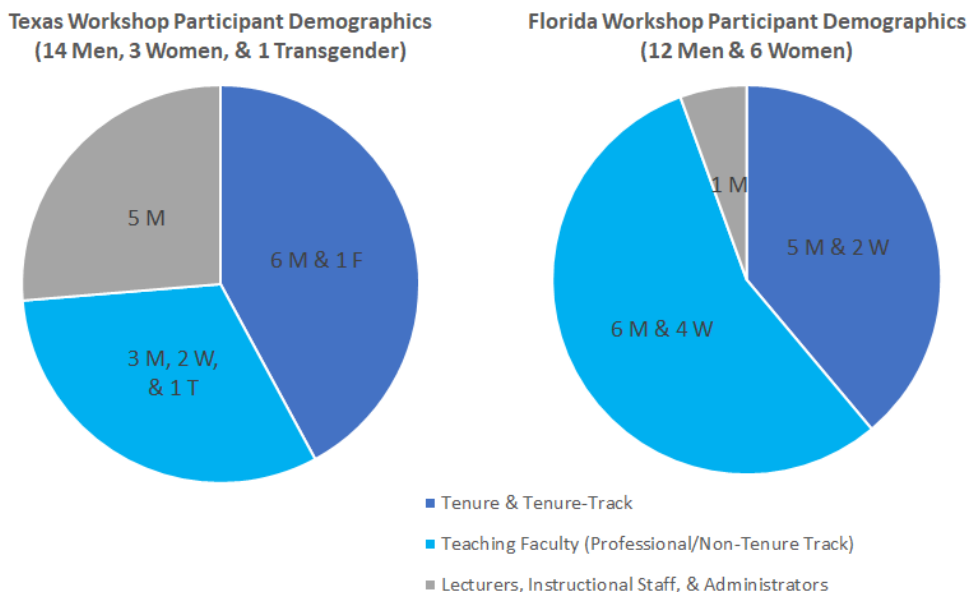


Figure 1: Demographics of Participants at each workshop, including gender and instructor type

### Data Collection

Data was collected over three surveys: a pre-workshop survey, a post-workshop survey, and a final survey disseminated six-months after the original workshops. Each survey was comprised of multiple instruments with strong evidence of validity designed to capture instructional perspectives as well as open-ended questions designed to examine participants' planned and current use of the approaches for educational change shared during the workshop. In particular, this study focuses on the following data sources:

Teaching Perspectives Inventory - All participants were asked to take the Teaching Perspectives Inventory (TPI) as part of the pre-workshop survey [24]. The survey is designed to capture how

educators perceive themselves in the classroom, specifically based on their beliefs, intentions, and self-reported actions [24]. The survey operationalizes Pratt's five perspectives of teaching: transmission, apprenticeship, developmental, nurturing, and social reform (further discussed in the results section) [24], [25]. The survey is administered on the TPI website ([www.TeachingPerspectives.com](http://www.TeachingPerspectives.com)) and the results were sent to the research team.

Levels of Use – Adapting the Levels of Use framework [26], attendees were asked in the post-workshop survey and the fall follow-up survey about their current use and their predicted future use of the techniques and concepts presented at the workshop. Each answer choice corresponded with a level of the framework (e.g., “I plan to incorporate a new technique I learned from the workshop into my class and will gather information from my students to see how I can improve the implementation in the future.”). Each level was associated with a particular set of open-ended follow-up questions. These questions asked participants to describe their reasoning for selecting a particular level of use and to share the extent of their use of the educational design tools from the workshop.

Open-Ended Questions - The post-workshop survey and fall follow-up workshop also included questions to explore the extent to which the workshop met the participants' expectations and the extent to which the content and activities were valuable. For example, “Beyond the concepts and approaches presented in the workshops, what other opportunities and/or resources did the workshops provide you with?”

### *Data Analysis*

For this study, we focused the data analysis on the 16 instructional faculty (i.e., non-tenure track and professional faculty) (IF) and the 14 tenure-line faculty (TT). All 30 completed the pre-workshop survey, but one tenure-line faculty member did not complete the post-workshop survey. For the fall follow-up survey, 21 of the faculty members participated ( $n_{IF}=12$ ;  $n_{TT}=9$ ). The differences in sample size for each survey are noted in the results. For the TPI, the results were shared with the research team and explored based on a given faculty member's position (instructional vs tenure-line). Thematic analysis was used to explore the responses of all participants to the open-ended questions in the Levels of Use as well as the general open-ended questions [27]. Specifically, all of the responses were read and categorized to capture key themes discussed by the participant. Each response was identified with anywhere between 1 and 5 categories. Following the initial read, the research team modified the categories by collapsing or expanding them based on reading, and rereading, each response. The resulting categories and emerging themes are discussed in the results section. The analysis also included explorations of differences between the experiences of instructional faculty and their tenure-line (tenure-track/tenured) counterparts.

## Results & Discussion

### *Who were the Instructional Faculty?*

Of the 30 full-time faculty participants, 24 completed the Teaching Perspectives Inventory (TPI) (80%), including 69% of the instructional faculty ( $n_{IF}=11$ ) and 93% of the tenure-line faculty ( $n_{TL}=13$ ). The results of this survey illustrated how these faculty perceive themselves as instructors in the classroom, based on a combination of their beliefs, intentions, and self-reported actions [24] (see Table 1).

Table 1: Dominant Teaching Perspectives of Workshop Attendees

Five Teaching Perspectives	# of Instructional Faculty	%*	# of Tenure-Line Faculty	%*
<b>Transmission:</b> Effective teaching requires a substantial commitment to the content or subject matter	1	9%	2	15%
<b>Apprenticeship:</b> Effective teaching is a process of enculturating students into a set of social norms and ways of working	6	55%	6	46%
<b>Developmental:</b> Effective teaching must be planned and conducted "from the learner's point of view"	1	9%	2	15%
<b>Nurturing:</b> Effective teaching assumes that long-term, hard, persistent effort to achieve comes from the heart, as well as the head	0	0%	3	23%
<b>Social Reform:</b> Effective teaching seeks to change society in substantive ways	0	0%	0	0%
More than 1 dominant perspective	3	27%	0	0%
*11 of 16 instructional faculty and 13 of 14 tenure-line faculty completed the inventory				

Approximately half of the workshop participants viewed effective teaching “as a process of enculturating students into a set of social norms and ways of working” [24, p. 3]. This *apprenticeship* perspective represented the dominant perspective of a little more than half of the instructional faculty ( $n_{IF}=6$ ) and a little less than half of the tenure-line faculty ( $n_{TL}=6$ ). None of the faculty reported only a dominant *social reform* perspective, which considers effective teaching as seeking to impact society in substantive ways. Of the other five instructional faculty, three had multiple dominant perspectives, which, for two of them, included social reform. The final two had a *transmission* and *developmental* perspective respectively. The tenure-line faculty on the other hand only had a single dominant perspective and outside of *apprenticeship*, the perspectives were equally distributed among *transmission*, *developmental*, and *nurturing*.

The 16 instructional faculty who self-selected to participate in the workshop series were also active participants in faculty professional development (See Table 2). Instructional faculty participated in an average of 3.9 different types of faculty professional development activities, including on-campus and off-campus workshops, events run by the on-campus teaching and

learning center, faculty learning communities, curricular innovation projects, and educational-related funded projects. Tenure-line faculty participated in an average of 3.7 different types of activities, with an average of 3.8 across all of the workshops participants. In addition, all but one instructional faculty member participated in at least 1 type of activity prior to the HSI workshop series. Overall, a higher percentage of instructional faculty participated in on-campus opportunities (e.g., on-campus workshops, events run by the on-campus teaching and learning center, faculty learning communities, curricular innovation projects on-campus) as compared with their tenure-line counterparts. Slightly more tenure-line faculty participated in off-campus faculty development workshops.

Table 2: History of Participation in Faculty Professional Development Activities

<b>Professional Development Activity</b>	<b>Instructional Faculty (n=16)</b>	<b>%</b>	<b>Tenure-line Faculty (n=14)</b>	<b>%</b>
<b>Off-Campus Workshops</b>	11	69%	10	71%
<b>On-Campus Workshops</b>	13	81%	11	79%
<b>Events run by on-campus teaching and learning center</b>	11	69%	9	64%
<b>Faculty Learning Community</b>	8	50%	5	36%
<b>Curricular Innovation projects on-campus</b>	11	69%	8	57%
<b>Educational-related funded projects</b>	8	50%	5	36%

The results of the pre-workshop survey questions demonstrated an openness to changes that help develop students as learners and engineers and an openness by the faculty to professional development, which was reinforced by the participants self-selecting to attend the multi-day workshop.

*What was the perceived value of the workshops by instructional faculty?*

When discussing key takeaways of the workshops, instructional faculty most commonly mentioned one of the three powerful ideas shared at the workshops (i.e., intrinsic motivation, student agency, design thinking) and/or the community building that occurred amongst participants. One instructional faculty explained how their biggest takeaway was “that I am not alone as a faculty in having the same plethora of problems and having been thinking about solutions”. This realization that they were not alone in their struggles and successes as instructors at HSIs was echoed by other participants, including tenure-line faculty. However, the instructional faculty tended to describe this feeling from a community building perspective, while the tenure-line faculty described realizing the commonalities among the diverse institutions. For example, one instructional faculty noted a takeaway as the “opportunity to meet new people who have similar challenges and goals,” while three tenure-line faculty expressed



takeaways similar to “all institutes, regardless of the location, admission criteria, status (2 or 4 year), face the same hurdles or challenges in engineering education.”

The instructional faculty also discussed two takeaways that were not mentioned by any of the tenure-line faculty. The first was how the workshop revealed resources that were available within their institution and more broadly to support educational change. As one faculty member explained, “there are more resources to help me than I realized.” In addition, the instructional faculty specifically acknowledged a desire to learn more about engineering education as a result of the workshops. For instance, the same faculty member who expressed that they are not alone in their experiences, also noted that they want to “explore more into [their] abilities to develop further in engineering education and serve/lead [their] HSI to become much better.”

In the fall follow-up survey, community building emerged as another major theme ( $n_{IF}=6$ , 50% of instructional faculty;  $n_{TL}=4$ , 44% of tenure-line faculty who completed the survey). Workshop attendees discussed their experiences at the workshops as providing an opportunity to network, to meet collaborators, to develop a local support system, to learn from one another and to meet individuals who have had similar experiences. One instructional faculty described how, “the workshop provided pointers and, dare I say, most importantly, the much needed networking with colleagues of similar mindset.”

In terms of areas of improvement for the workshop design, attendees described wanting to further engage with current students, either through observations of courses or case studies of course designs at the host institutions. This recommendation would help make the sometimes abstract ideas of educational reform visible and concrete for attendees who have not engaged in different pedagogical techniques previously.

#### *What changes occurred in instructional practices after the workshops?*

Another emerging theme from the fall follow-up survey was the exposure to new techniques, ideas, and research to inform the (re)design of courses at the participants’ institutions. For instance, three instructional faculty described how the workshop content raised their awareness of new course design approaches. As one participant explained, “The workshop provided us opportunity to work in groups and have greater discussions on the similar challenges and opportunities at HSIs. I also like the tools that were provided and we had hands-on activities that opened up my horizon.” Interactions among participants also allowed for participants’ ideas to be shared within and across institutions.

Upon further exploration of attendees’ previous use of educational design tools and approaches as well as their intended future use following the workshops, the results, illustrated in Figure 2, narrate a story of adoption of a variety of educational design tools by all of the workshop attendees (i.e., instructional and tenure-line faculty, along with 5 administrator and staff

attendees). For example, “active learning” broadly describes the use of in-class activities, collaborative or individual, that seek to engage students in the material. While six attendees described using some form of active learning previously, six different attendees adopted active learning techniques in their courses between the workshops and the end of the fall semester. The seventh attendee in Figure 2 was one of the original six who expanded their use of active learning in their courses since the workshops.

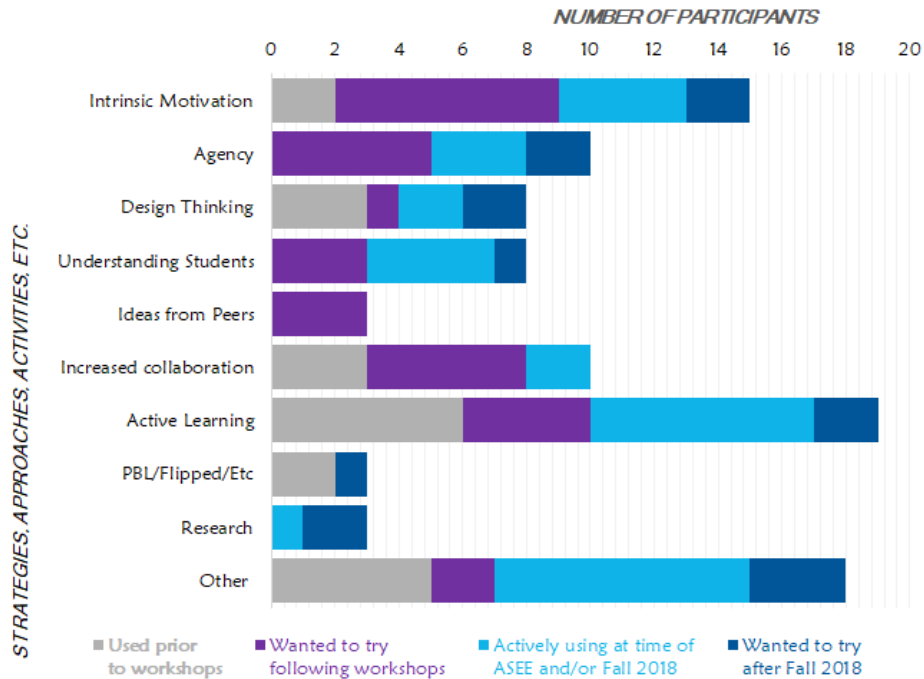


Figure 2: Attendee use of educational design approaches (n=35)

Another example is the increase in the use of activities focused on understanding one’s students, including but not limited to gathering student feedback, assessing student prior knowledge, and learning about students’ backgrounds or interests. While three attendees mentioned wanting to try experiments to better understand their students, four different attendees began implementing activities in their classes to better understand their students’ backgrounds and experiences.

When examining the previous and intended future use of the educational techniques and concepts by only instructional faculty, a stronger narrative of adoption and enthusiasm for educational change emerges (see Figure 3). The instructional faculty, while participating in a variety of on-campus teaching professional development opportunities, were implementing a few but not many of the strategies and approaches discussed during the workshop. Following the workshop, many wanted to adopt the different strategies and approaches from the workshop, including but not limited to intrinsic motivation (n<sub>IF</sub>=5, 31%), collaboration with peers and colleagues (n<sub>IF</sub>=4, 25%), student agency (n<sub>IF</sub>=2, 13%) and understanding students activities (n<sub>IF</sub>=2, 13%). Let us consider two of these instructional faculty as examples. Professor Apple explained, “I am in process of redesigning one of my core courses that will be offered as a fully

online course. It the perfect time to RETHINK how I can enhance intrinsic motivation of my online students.” Professor Orange, on the other hand, wanted to focus on one aspect of intrinsic motivation, competency. “I do not do much active learning in my classes. I will focus more on providing activities that build competence in the topics I teach.”

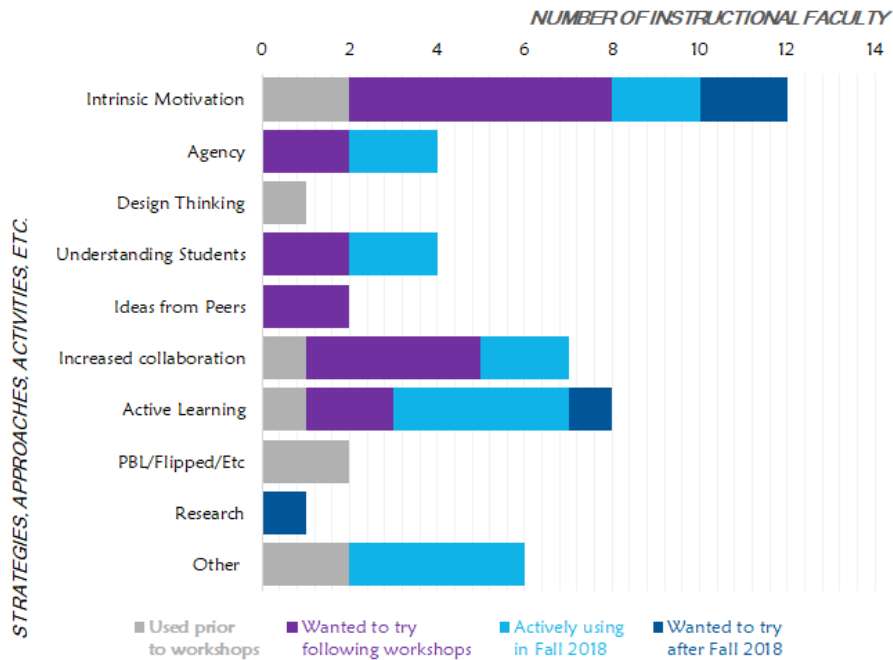


Figure 3: Instructional faculty use of educational design approaches (n=16)

By the fall of 2018, there were a few of stories of faculty facing challenges due to workload and other responsibilities, such as that of Professor Orange. In particular Professor Orange had additional administrative duties and a low teaching load that had not permitted them to make changes to their courses, at least right now. Still, they noted that they hoped to implement a “technique to make students self-aware of their capabilities” in the future. Most of the stories, however, were about instructional faculty taking strides towards improving the learning experiences of their students. Professor Apple, for example, explained,

I have worked towards providing autonomy to my students for their final projects. The scope of the project remained same but they can opt to select their team members or to work individually. I have gathered some informal feedback and it seems that they felt more engaged and responsible after making their choices.

Beyond the informal feedback, Professor Apple also incorporated activities that help them better understand their students.

Overall, the data illustrated an increase in the use of active learning techniques by the instructional faculty. Even though not every faculty made changes to their courses, a few did incorporate activities that support students’ intrinsic motivation, and others focused on increasing

student agency, better understanding their students, and other classroom innovations. The discourse used within their responses describes a sense of optimism about how they have changed their courses and what they can do in the future to further support their students. For instance, as one faculty explained in the fall survey,

I have made changes to my class since I took the workshop...Mostly, the workshop provided me with tools and frameworks to reflect on what I was doing and to become more deliberate in my teaching choices. Also, the part on motivation guides most of my activities.

Another faculty noted,

I already implemented some concepts I learned by attending the workshop into my classes. I'm applying the concept of having the student to help in the education process as educators not just learners. They are doing more presentations and projects, they work in teams, and more.

In comparison to their tenure-line counterparts, the instructional faculty demonstrated a stronger interest in using the principles of intrinsic motivation to change the design of their courses and a stronger desire to increase their collaboration with colleagues and on-campus support centers. In addition, the instructional faculty were the only participants who explicitly discussed incorporating changes to their courses that support student agency.

### **Implications for Faculty Development**

The results of this study highlight the potential impact of engaging with instructional faculty around educational design and engineering education research. Yet, future efforts will need to consider how to work around and leverage the challenges and requirements that are specific to instructional faculty more generally and instructional faculty at HSIs. For example, the observed differences between participation in on-campus vs off-campus faculty development activities, could suggest a need for departments to provide support, financial and other, to promote participation in off-campus activities by the instructional faculty.

Community building, while not explicitly within the workshop goals, was an indirect impact of the small group activities during the workshops. In addition, instructional faculty appeared to have higher participation rates in learning communities than tenure-line faculty, suggesting a preference for models designed around community building. In alignment with research by Felder, Brent, and Prince [20], faculty development models for instructional faculty should consider including activities that encourage community building or are designed with community building as an explicit goal.

### **Implications for Research**

Future research should seek to further understand the faculty development needs of instructional faculty, potential differences with tenure-line faculty, and challenges that are specific to

instructional faculty, as well as the role of faculty development on career pathways and promotion. The research should also consider multiple institutional contexts, as this study focused on faculty at HSIs. In addition, the findings of this study highlighted a need to examine instructional faculty members' perceptions and use of resources, beyond on-campus workshops. Finally, the interest by the instructional faculty in engaging further with engineering education research suggests an opportunity to examine their development of educational theory and research knowledge.

The results illustrated that only instructional faculty had multiple dominant teaching perspectives. Given the small sample size, further research could seek to identify the sources of these differences and whether the teaching perspectives of instructional faculty change with experience in a unique manner compared to tenure-line faculty. Lastly, since participants in this study voluntarily signed up for the workshop, the participation rate in faculty development activities may not be representative of all faculty across HSIs. These rates may be higher for these participants who already see value in this type of faculty development. While this is a limitation of the workshop model used in this study, the results suggest future work could focus on the experiences of faculty who do not attend workshops such as these.

## **Conclusion**

This exploratory research study sought to better understand faculty development models that can support instructional engineering faculty at HSIs, institutions where reform efforts have the potential to increase the representation of Hispanic/Latinx students in engineering. Specifically, we examined the experiences of instructional faculty at HSIs before and after participation in a multi-institutional faculty development workshop series. Through the analysis of survey data, the findings suggest that the workshop provided a venue for community building among participants and exposure to new techniques and ideas. In addition, the instructional faculty demonstrated a strong interest in applying the principles of intrinsic motivation and student agency. Overall, this paper makes visible the experiences of instructional faculty at HSIs, specifically how the workshop supported these faculty taking strides towards improving the learning experiences of their students. The results have the potential to inform the creation and refinement of faculty development programming at HSIs, within engineering colleges more broadly, and at ASEE. In addition, the findings lay the foundation for future research on this under-explored group within the engineering faculty.

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