

## **Faculty Development Symposium: Building a Community for Early-Career Engineering Hispanic Faculty's Success and Advancement**

**Dr. Dayna Lee Martínez, Society of Hispanic Professional Engineers, Inc.**

Dayna is a Senior Director of Research & Impact at the Society of Hispanic Professional Engineers (SHPE), where she leads a team of professionals who specialize in data-driven design and implementation of programs and services to empower pre-college students, parents, graduate students, and faculty members in STEM fields, with a particular focus on advancing Hispanic representation and success. With over 15 years of experience in creating data collection tools, analysis methodologies, and effectively presenting results, she dedicates herself to promoting Hispanic excellence in STEM.

She joined SHPE's staff in 2021, after serving as a faculty member at Northeastern University and a post-doctoral fellow at the James A. Hailey Veterans Hospital and the HSyE Institute. Holding a PhD in Industrial Engineering from the University of South Florida and a certificate in Diversity, Equity, and Inclusion from Cornell University, Dayna is deeply passionate about increasing Hispanic representation and success in STEM. Leveraging her analytical skills and data-driven approach, she is committed to creating and evaluating impactful programs and services for the Hispanic STEM community.

**Dr. Kimberly D Douglas P.E., Society of Hispanic Professional Engineers, Inc.**

Over 25 years of experience as an engineering educator and administrator developing and funding programs for increasing the persistence and degree completion rates of STEM students. Particular expertise in creating mutually beneficial partnerships and pro

**Andrea D. Beattie, Society of Hispanic Professional Engineers, Inc.**

Andrea D. Beattie is a graduate from Texas A&M International University in Laredo, Texas, where she earned a Bachelor of Arts and Master of Arts in Political Science in 2011 and 2012, respectively. Currently she serves as Manager, Research and Innovation at SHPE. In this role, she assists the organization with research, program evaluation, and data analytics.

**Ms. Esther Gonzalez**

Esther González is a PhD candidate in the Price School of Public Policy at the University of Southern California (USC). Her research domains are organization behavior and diversity management. Her research is multidisciplinary and applies methods and fields in public policy, management, political science, and sociology. Upon completion of her Bachelors of Arts degree in International Development Studies at UCLA, she began a successful career in banking and finance at Bank of America, Merrill Lynch. She has completed various post baccalaureate certifications through UCLA Anderson and the Harvard Business School; most recently, she completed her MPA at California State Polytechnic University, Pomona, and MBA at Cornell Tech. She has published in multiple academic journals including ASEE, ROPPA, and APPAM. Additionally, her scholarly work has been featured in Forbes magazine. She believes that research can inform diversity, equity, and inclusion (DEI) policies and programs to one day have a workforce that is representative of the society it aims to serve.

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## **Background and Motivation**

In the landscape of engineering academia, the underrepresentation of Latinx/Hispanic professors is a significant challenge, as highlighted by the ASEE report, "Engineering by the Numbers," which revealed that only 3.6% of faculty appointments in engineering are held by Latinx/Hispanic individuals [1]. While many programs emphasize increasing the Latinx/Hispanic pipeline into engineering doctoral programs and academic careers, there remains a distinct gap in addressing the unique challenges and experiences faced by Latinx/Hispanic faculty members.

Several factors contribute to the underrepresentation of Latinx/Hispanic professors in engineering academia. These include systemic barriers, such as lack of access to educational resources, cultural biases, and limited networking opportunities [2, 3]. Additionally, institutional biases and hiring practices may perpetuate the underrepresentation of Latinx/Hispanic individuals in faculty positions [4]. The underrepresentation of Latinx/Hispanic professors in engineering academia has significant implications for diversity and inclusion within academic institutions. It can contribute to a lack of diverse perspectives in research, teaching, and mentorship, ultimately hindering innovation and excellence in the field [5]. Efforts to address the underrepresentation of Latinx/Hispanic professors in engineering academia include targeted recruitment initiatives, mentorship programs, and diversity training for faculty and staff [6]. Additionally, creating inclusive environments that support the retention and advancement of Latinx/Hispanic faculty members is essential for promoting diversity and equity within academic institutions [7]. The underrepresentation of Latinx/Hispanic professors in engineering academia poses challenges to achieving diversity, equity, and inclusion within academic institutions. Addressing this issue requires concerted efforts from institutions, policymakers, and stakeholders to dismantle systemic barriers and create more inclusive environments for underrepresented groups. Particularly, external programs like the Faculty Development Symposium can be a catalyst in supporting the retention of Latinx/Hispanic faculty in engineering by providing culturally competent and responsive programming, a community of individuals with shared experiences, and a network of role models.

## **Faculty Development Symposium**

To bridge the significant gap in the underrepresentation of Latinx/Hispanic professors in engineering academia, a non-profit organization takes proactive measures through an annual Faculty Development Symposium (FDS). Serving as a crucial platform, the FDS plays a pivotal role in cultivating a diverse and inclusive community of engineering faculty, providing essential support, and fostering collaborative opportunities. This symposium is designed to empower participants by imparting the skills and resources necessary to navigate the intricate terrain of earning tenure and promotion, all while facilitating valuable networking interactions. Engaging with esteemed tenured faculty role models spanning diverse disciplines, participants also connect

with early-career colleagues from across the nation, creating a dynamic and inclusive space for professional growth and collaboration.

The inception of the FDS can be traced back to the initiation of an ASSIST grant awarded on September 17, 2015, identified by the number 1548322. Titled "ASSIST: Strengthening Engineering Faculty through Diversity-Serving Professional Organization Engagement," this grant laid the foundation for the FDS. Launched by SHPE in November 2015, the program initially operated as a subaward to the overarching project, with the grant primarily allocating funds for travel.

Collaborating with organizations such as the National Society of Black Engineers (NSBE), the American Indian Science and Engineering Society (AISES), the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), the Society of Women Engineers (SWE), Great Minds in STEM (GMIS), and the Mexican American Engineering Society (MAES), which facilitated regular benchmarking sessions among the seven organizations, enhancing the program through valuable information exchange.

Originally planned for four years, the FDS extended its impact to five, concluding in 2020. The 2020 symposium, held virtually due to the COVID-19 pandemic, showcased the program's adaptability. Following a hiatus in 2021, the FDS made a return with in-person meetings during SHPE's annual convention in 2022 and 2023. This strategic alignment with the annual convention further reinforces the program's integration into the broader professional landscape, providing participants with a dynamic platform for networking, collaboration, and professional development within the engineering academia community.

The FDS aspires to achieve a multifaceted set of goals aimed at cultivating a vibrant and inclusive community within engineering academia. Firstly, the FDS endeavors to create a strong sense of community by uniting engineering faculty participants who share similar life and career experiences. Through fostering connections and shared narratives, the symposium aims to establish a supportive network that transcends traditional professional boundaries. Secondly, the FDS seeks to provide invaluable career guidance by offering expert insights through subject matter speakers during workshop sessions. These distinguished speakers serve as navigators, guiding participants along diverse career pathways within the field of engineering academia. Lastly, the symposium is committed to addressing the unique needs of both tenure-track and non-tenure-track participants by developing customized, differentiated, and scaffolded content. This tailored approach ensures that the content aligns with the specific challenges and aspirations of each participant group, ultimately enhancing their professional development and success in the academic realm.

This one-day conference encompasses a diverse array of workshops, including sessions on Developing a Personal Brand, Creating Healthy Boundaries, Promotion and Tenure Process, a Deans Panel, and an Agency Panel. Open to all with free participation and registration, this initiative aims to make a significant impact on representation of Hispanic faculty. By offering valuable insights and resources, the conference seeks to empower early career faculty members and enhance their professional journey. The provision of free participation not only breaks down

financial barriers but also contributes to fostering a more inclusive academic community. Importantly, this initiative recognizes the profound influence of diverse faculty on Hispanic/Latinx students, offering them positive role models and mentors. By strengthening the faculty body's diversity, the conference contributes to a supportive and inclusive environment that positively influences the educational outcomes and experiences of Hispanic students.

### **Program Structure**

The one-day FDS boasts a program structure that seamlessly combines workshops and panels, ensuring a dynamic and comprehensive experience for all participants. With topics ranging from promotion tips to writing grants and teaching strategies, the FDS caters to the diverse needs of faculty members at various career stages. Notably, certain workshops and panels are thoughtfully divided between tenure-track and non-tenure-track categories, ensuring that the program is tailored to address the unique concerns and aspirations of each group. This strategic approach underscores the FDS's commitment to inclusivity, guaranteeing that all types of faculty can glean valuable insights and guidance from the symposium. Furthermore, the program design incorporates dedicated networking time during breakfast and lunch, encouraging participants to establish robust connections with faculty members from across the country. To extend these opportunities, the symposium concludes with a networking social event in the evening. This holistic program structure not only enriches participants with valuable knowledge but also fosters a supportive and collaborative community within the engineering academia landscape.

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As the day concludes, attendees have the opportunity to volunteer as judges in the STEM Research Poster Competition, engaging with students about their posters and providing feedback based on a rubric crafted by the Competition Leads. This illustrative example not only showcases the FDS's commitment to inclusivity and tailored support for faculty members at various career stages but also highlights the symposium's dedication to fostering collaboration between faculty and students.

Following this enriching experience, participants transition to a networking social event. This informal gathering provides a relaxed atmosphere for attendees to further strengthen relationships forged throughout the day. The combination of collaborative judging and social interaction contributes to a vibrant and supportive community within the engineering academia landscape, reinforcing the FDS's mission to empower and connect faculty members across the nation.

A sample agenda is given in Table 1, curated by a faculty committee comprising four tenured professors. This committee collaborates closely with the SHPE team to leverage data from previous events, drawing upon both quantitative insights and their extensive experience in academia. The synergy between the faculty committee and the SHPE team is instrumental in the strategic selection of topics and speakers for the event. By analyzing past event data and combining it with the committee's invaluable expertise, the agenda is thoughtfully crafted to address the specific needs and interests of the diverse audience. This collaborative approach ensures that the FDS remains at the forefront of addressing contemporary challenges and fostering the professional growth of engineering faculty members.

The recruitment strategy for the Faculty Development Symposium (FDS) employs a multifaceted approach to ensure widespread outreach and inclusivity. The symposium is prominently advertised across various social media channels, leveraging the organization's online presence to reach a diverse audience. Additionally, a robust word-of-mouth campaign is facilitated by the committee, speakers, and past attendees, harnessing personal recommendations and testimonials to amplify the event's visibility.

A dedicated email campaign further extends the outreach, targeting a curated list of faculty members exceeding 1000, primarily comprising individuals from Hispanic backgrounds. This meticulously curated list is compiled by tapping into the ASEE (American Society for Engineering Education) list of engineering faculty, identifying faculty members who have previously expressed interest in our events. Furthermore, the list includes faculty advisors of our chapters, establishing a direct connection with academic leaders who play a pivotal role in shaping the experiences of students and faculty alike. To enhance the personal touch, personalized calls are made to confirm attendance, providing a direct line of communication, and reinforcing the commitment to individual engagement.

By strategically combining online platforms, personal endorsements, targeted email campaigns, and personalized outreach calls, the recruitment strategy ensures that the FDS reaches a broad and diverse audience within the engineering academia community. This approach fosters engagement and participation from faculty members who can benefit most from the symposium's offerings, contributing to the overall success and impact of the event.

*Table 1 FDS Sample Agenda*

<b>Time</b>	<b>Activity</b>
<b>8:00 – 9:00 am</b>	Registration & Breakfast
<b>8:45 – 9:00 am</b>	Welcome Remarks
<b>9:00 – 10:00 am</b>	Concurrent Session #1 - Topic: CAREER Award
	Concurrent Session #1 - Topic: Culturally Responsive Teaching
<b>10:00 – 10:15</b>	Break
<b>10:15 – 11:15 am</b>	Session #2 - Topic: Maximizing Your Journal Publication Potential
<b>11:15 – 12:15 pm</b>	Session #3 - Topic: How to account for Invisible service
<b>12:15 – 1:00 pm</b>	Lunch
<b>1:00 – 2:00 pm</b>	Deans Panel: Tenure Track
	Agency reps panel: Non-Tenure Track

<b>2:00 – 3:00 pm</b>	Agency reps panel: Tenure Track
	Deans Panel: Non-Tenure Track
<b>3:00 – 3:15 pm</b>	Break
<b>3:15 – 4:45 pm</b>	Session #4 - Topic: How to Write and Submit a Grant
<b>5:00 – 6:30 pm</b>	Judge Poster Competition for STEM Research
<b>7:00 – 9:00pm</b>	Networking

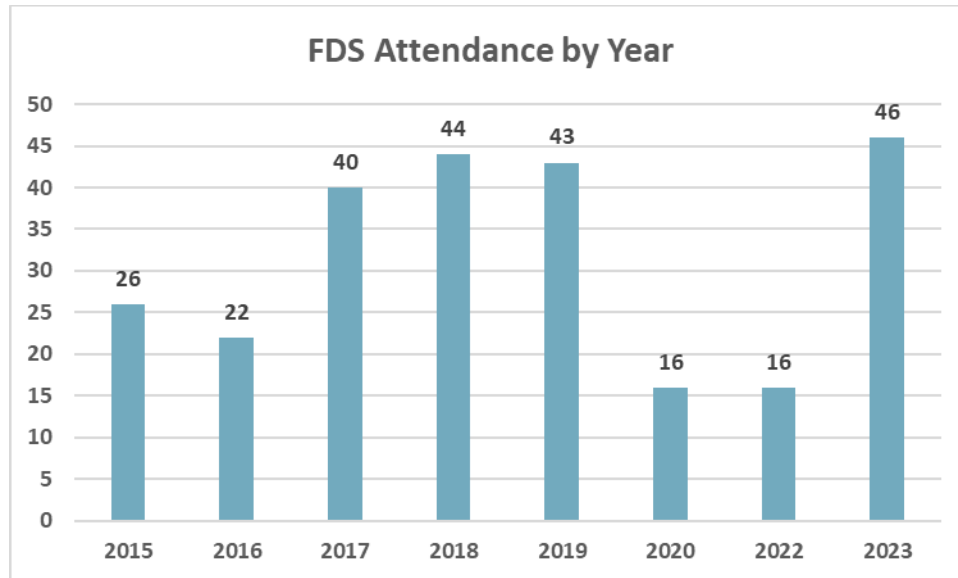
As shown, the FDS operates at the intersection of strategic skill development, resource dissemination, and informal networking, recognizing the multifaceted nature of success in academia. By employing diverse strategies, FDS aims to address the unique needs of engineering faculty members, fostering an environment conducive to professional growth and collaboration. Research has shown that such multifaceted approaches, including skills development, access to resources, and informal networking, are robust predictors of success in academia. As we delve into the results and discussion, it becomes evident how these intentional strategies contribute to the overarching goal of enhancing the academic journey for faculty members across varied career stages.

## **Results and Discussion**

In this section, we delve into the results of the Faculty Development Symposium (FDS), shedding light on attendance trends, patterns, and key considerations that emerge from the data, offering insights into the symposium's impact and areas for potential improvement.

We have consistently hosted a Faculty Development Symposium every year since its inception in 2015, except for 2021, when the event was temporarily halted due to the challenges posed by the COVID-19 pandemic, resuming in 2022 and continuing through 2023. Figure 1 illustrates the attendance by year, revealing a noteworthy aspect: while 16 and 43 participants physically attended the symposium in 2022 and 2023, a larger cohort of 56 and 79 individuals, respectively, registered for these years. This discrepancy highlights a critical aspect of attendance dynamics—the challenge posed by limited funds for travel expenses. Despite evident interest, the inability to secure funding may act as a deterrent for faculty members, restricting their ability to participate in person. This observation underscores the importance of addressing financial barriers and enhancing accessibility to ensure broader and more inclusive participation in future FDS events.

Regarding repeat participants, our impact extends to a remarkable 182 faculty members and soon-to-be faculty who have participated in the last eight events, as illustrated in Figure 2. This broad reach is reflected in the representation of over 154 universities, underscoring the symposium's national influence and effectiveness in engaging a diverse academic community. Each year, we actively strive to broaden our reach by extending invitations to a widening array of institutions and faculty members. Notably, in 2023, we achieved our highest attendance in a single event, with 46 enthusiastic participants, signaling a growing and impactful presence within the engineering academia landscape. This success underscores the potential for even greater expansion if additional funding were available to cover travel expenses, providing opportunities for faculty members who express interest but currently face financial constraints in attending.



*Figure 1 FDS Attendance Over the Years*

The repeat attendance rate at the symposium can be viewed in different lights depending on the goals of the event. While having more repeat attendees can indicate the value participants find in the symposium, it's also important to consider the symposium's target audience and objectives. As we curate and design the program primarily for early career faculty, it's natural that those in later stages might not find it as useful to attend multiple years in a row. However, for early career faculty, attending multiple times can be beneficial as the agenda evolves each year, offering new insights and networking opportunities. Additionally, repeat attendance can foster stronger relationships among attendees, enhancing the overall experience and impact of the symposium. Therefore, while we welcome and value repeat attendees, our focus remains on providing meaningful experiences for all participants, whether they attend once or multiple times. Attendees can gain valuable insights and connections from just one attendance, making it a worthwhile experience regardless of repeat attendance.

Participation from Hispanic-Serving Institutions (HSIs) is crucial for fostering diversity and inclusivity within the FDS community. Faculty members from HSIs bring unique perspectives, experiences, and expertise that enrich the symposium's discussions and collaborations. Additionally, their involvement helps to ensure that the needs and challenges specific to HSIs are adequately addressed, contributing to the overall effectiveness and relevance of the symposium's programming.

In 2022, 41.5% of FDS registrants were from an HSI, as determined by HACU's list of HSIs. This percentage increased slightly in 2023, with 43.0% of FDS registrants coming from HSIs. Analyzing the attendees specifically, in 2022, out of those who attended 31.0% were from an HSI. In 2023, 41.0% were from an HSI. These figures indicate consistent and significant representation from HSIs, reflecting the FDS's commitment to diversity and inclusivity within its participant base.

In what follows, we delve into the results derived from feedback surveys conducted during the Faculty Development Symposium, providing valuable insights into participant experiences and sentiments.

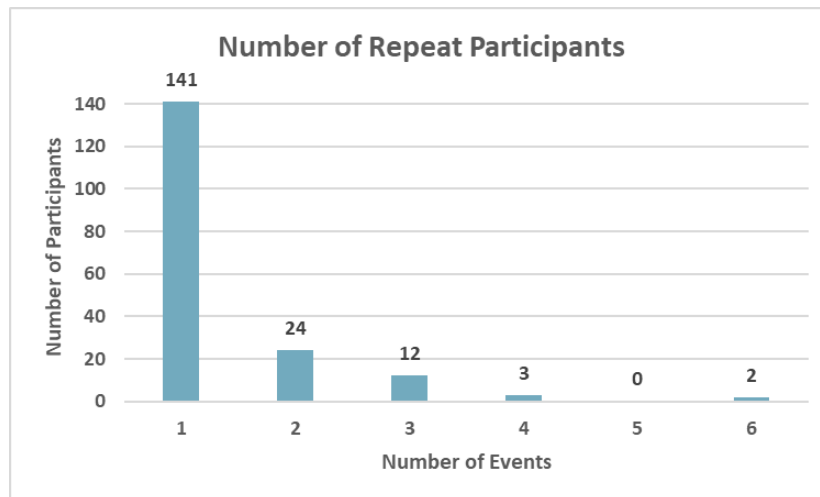


Figure 2 FDS Number of Repeat Participants

### Feedback Survey for years 2015-2022

During May 2023, as preparations for the 2023 FDS commenced, collaboration with our external evaluator led to the creation of a comprehensive survey targeting all previous participants spanning from 2015 to 2022. These efforts were aimed at soliciting valuable feedback to inform the content and agenda for the upcoming 2023 FDS event. In this section, we present a summary of the results obtained from this survey, shedding light on key insights that guided the refinement and enhancement of the symposium's offerings.

We obtained responses from 46 previous participants, providing a substantial sample size conducive to deriving meaningful conclusions and insights. Notably, feedback was gathered from participants across all years of the Faculty Development Symposium (FDS) series, with the exception of the year 2020. This comprehensive data set facilitated a thorough analysis of participant experiences and preferences across various symposium iterations.

Participants were also queried regarding their current tenure status or aspirations, revealing a diverse range of career trajectories. Out of the respondents, 25 individuals (58.14%) reported being in a tenured position, while 14 (35.56%) expressed their intent to pursue a tenured position. Conversely, 4 participants (9.30%) indicated that they were not seeking a tenured position. When asked to elaborate on their reasons for not pursuing tenure, respondents cited various factors such as interest in a non-tenured track position, aspirations for roles in industry or non-profit sectors, and geographical constraints due to preferred locations. One respondent noted retirement as the reason for not seeking a tenured position, highlighting the diverse array of motivations shaping career decisions among faculty members.



Participants were further asked to rate the perceived impact of the FDS on their professional trajectory. Responses varied, with 2.44% indicating no discernible impact, while 7.32% reported a minor impact. A substantial proportion of respondents, comprising 43.90%, acknowledged a good impact on their professional development. Notably, a significant majority of 46.34% expressed that the symposium had a high impact on their professional growth. These findings underscore the substantial positive influence of FDS in enhancing the professional trajectories of its participants, with a notable portion attributing a high level of impact to their engagement with the symposium.

Figure 3 depicts the results of a matrix question where participants were asked to indicate their level of agreement regarding how the Faculty Development Symposium (FDS) assisted them in various categories. Utilizing a 5-point scale ranging from strongly agree to strongly disagree, participants provided valuable insights into their perceptions. Notably, the categories where FDS was deemed most beneficial included expanding their informal professional network, which is recognized as a significant predictor of success in academia for faculty. Following closely was the assistance provided by FDS in understanding national resources and opportunities, underscoring the symposium's role in facilitating access to valuable resources. Additionally, participants identified gaining a better understanding of promotion and tenure processes as another area where FDS proved particularly helpful, indicating the symposium's effectiveness in providing guidance on crucial aspects of academic advancement.

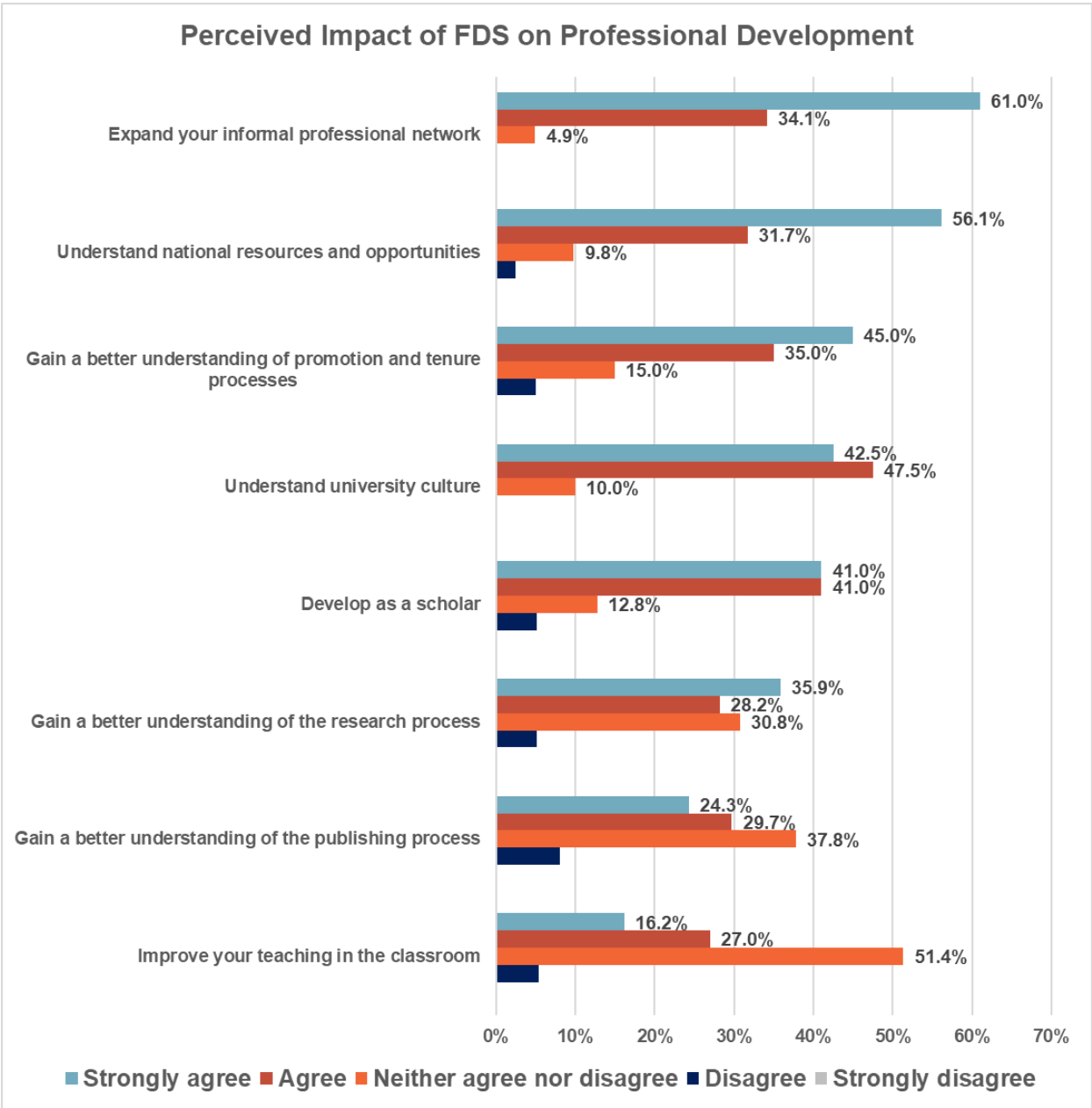
These previous years feedback survey highlights the pivotality of the FDS in enhancing participants' professional growth and addressing key challenges in academia. In the following section, the 2023 Feedback Survey results are examined, offering new avenues for refining, and improving the symposium's offerings.

### Feedback Survey for 2023

In 2023, we introduced a post-Faculty Development Symposium (FDS) feedback survey using Survey Monkey. The survey achieved a response rate of 46%, with 22 out of 48 invitations generating valuable feedback.

A significant finding is that 77.3% of respondents indicated that this was their inaugural attendance at an FDS event, highlighting the symposium's capacity to continually engage new participants. In terms of faculty positions, 59.1% reported being in a tenure-track position, 9.1% were already tenured, and 31.8% were not on a tenure track (as shown in Figure 4). As shown in Figure 5, most attendees were assistant professors.

For those not pursuing tenure (n=7), we inquired about their motivations, and the top responses included a focus on teaching (4), seeking a better work-life balance (3), and an interest in pursuing administrative/leadership positions (2). These insights offer a nuanced understanding of the diverse career trajectories and motivations among faculty members, informing future iterations of the Faculty Development Symposium to better meet the needs of its varied participants.



*Figure 3 Perceived Impact of FDS on Professional Development*

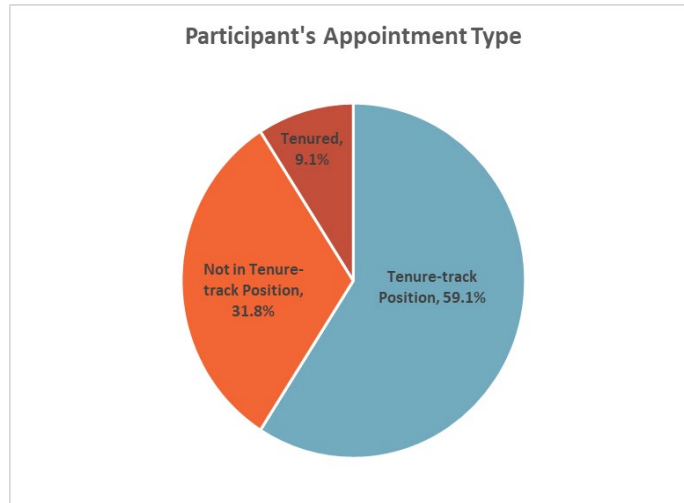


Figure 4 Participants Type of Appointment

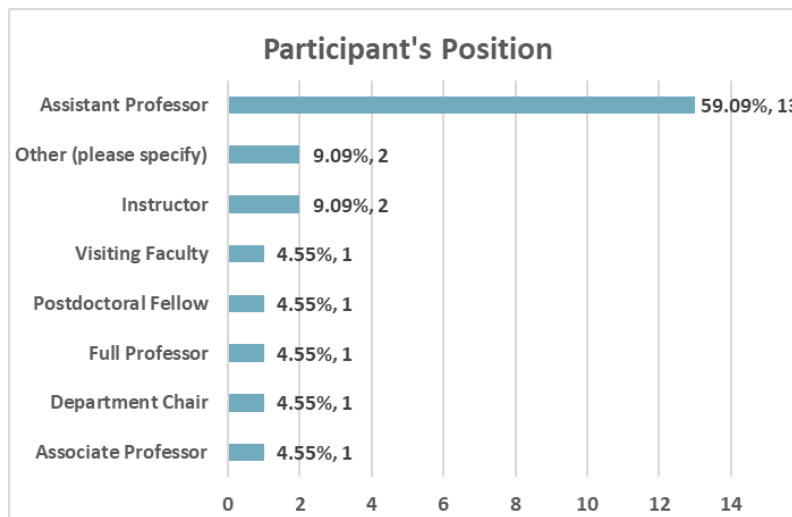


Figure 5 Participant's Current Position

As shown in Figure 6, the Net Promoter Score (NPS) for the Faculty Development Symposium, a key indicator of participant satisfaction, reached an impressive 72.7, reflecting a strong endorsement and positive recommendation from the surveyed attendees.

To gauge the perceived usefulness of various FDS sessions, participants were asked to rate their experiences with seven distinct sessions. The top three sessions, based on participant feedback (as shown on Figure 7), were "Culturally responsive teaching," "How to account for invisible services," and "A platica with Latinx faculty on attaining the NSF CAREER grant." On average, across all sessions, the usefulness was rated at 3.8 out of 5, with a median usefulness score of 4.0 out of 5. The scale ranged from 1 (not at all useful) to 5 (extremely useful). These results affirm

the positive impact of the symposium sessions, showcasing their value in addressing the diverse needs and interests of the participating faculty members.

**2023 FDS  
Net Promoter Score  
(72.7)**

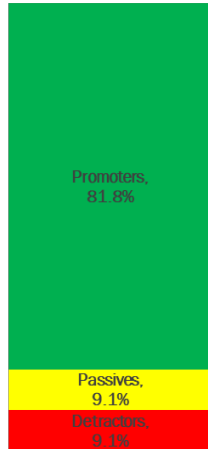


Figure 6 2023 FDS Net Promoter Score

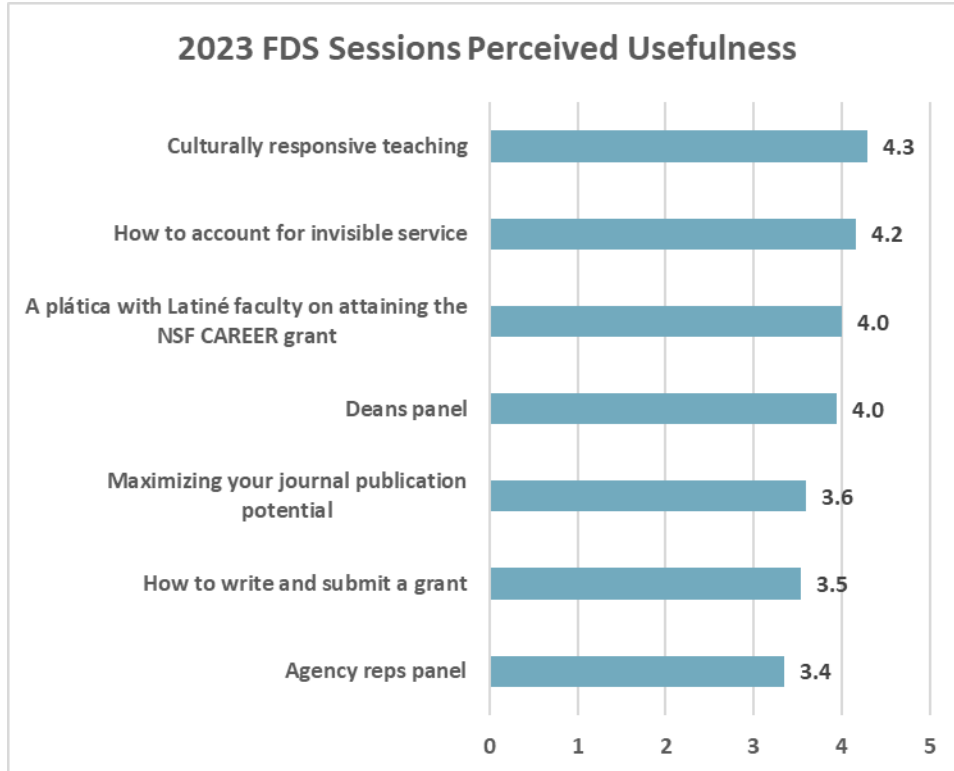


Figure 7 Usefulness of Sessions

The subsequent survey question delved into how participants allocate their time among various faculty responsibilities, encompassing teaching, research, service, and other roles. As depicted in Figure 8, a predominant portion of participants' time is dedicated to teaching, followed by research, and then the "other" category which encompassed diverse responsibilities such as department chair, program management, and professional development. Understanding the distribution of time across these facets is crucial as it provides valuable insights into the diverse and multifaceted roles undertaken by faculty members. This information aids in tailoring future Faculty Development Symposium sessions to address the specific challenges and priorities faced by attendees, ensuring that the content remains relevant and impactful in their professional development journey.

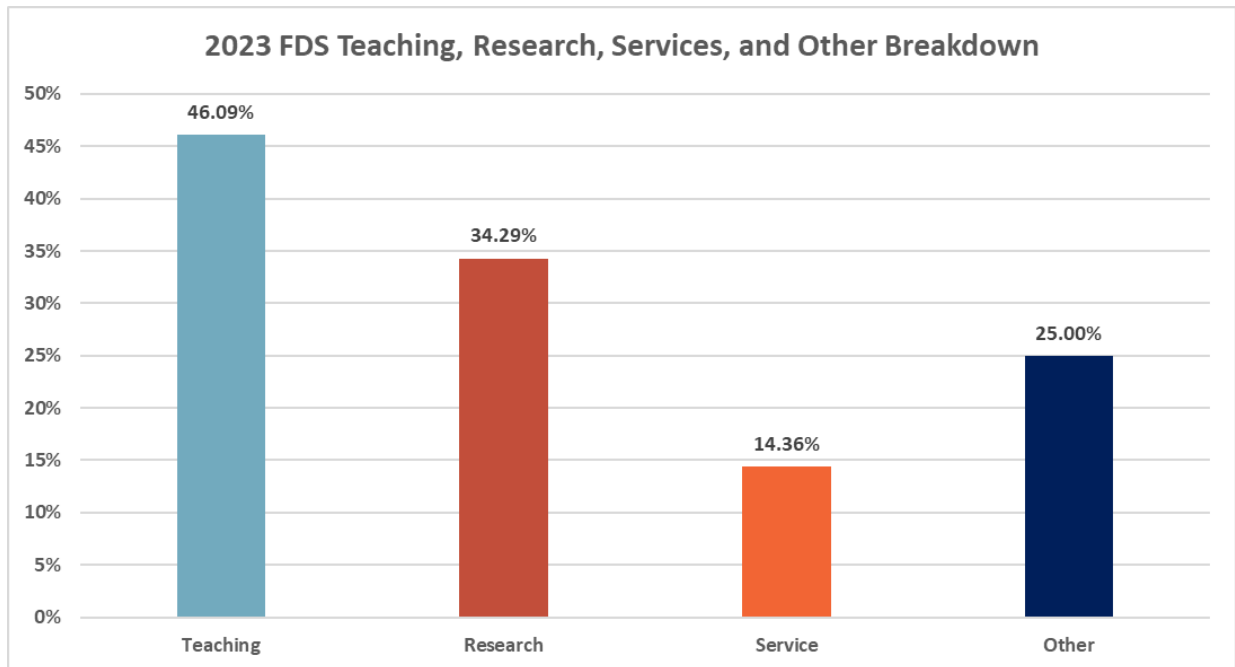
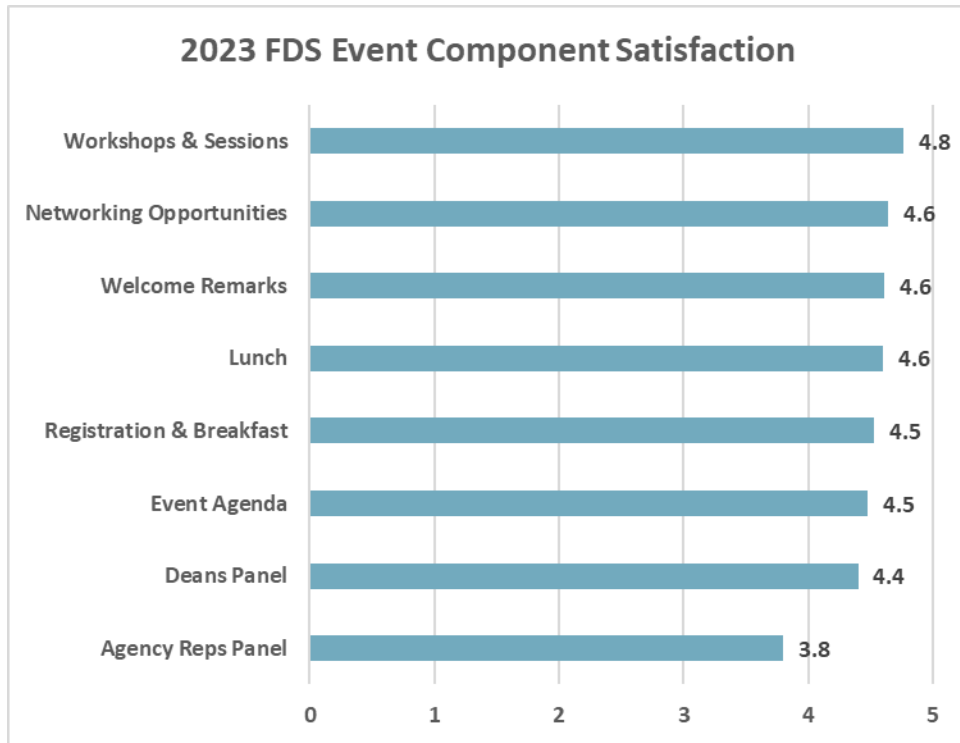


Figure 8 FDS Participants Responsibilities Breakdown

Figure 9 shows the results at assessing the effectiveness of different components, participants identified the top three contributors to their satisfaction: Workshops & Sessions, Networking Opportunities, and Welcome Remarks. The overall satisfaction, reflected in the responses, averaged an impressive 4.5 out of 5, with a median of 5 out of 5 on the scale ranging from 1 (very dissatisfied) to 5 (very satisfied).

Furthermore, in evaluating the effectiveness of speakers through a separate question, the average rating across all nine speakers was 4.3 out of 5, with a median response of 5 out of 5. The effectiveness scale employed ranged from 1 (not at all effective) to 5 (extremely effective). These results underscore the remarkable impact of key symposium components and speaker contributions, affirming the high level of satisfaction and perceived effectiveness among the participants.



*Figure 9 FDS Satisfaction with Different Event Components*

Learning outcomes were evaluated by prompting participants to assess their familiarity with each symposium topic. Respondents indicated their level of pre-existing knowledge (as shown on Figure 10) for each topic, allowing them to express whether they already knew the subject, gained a little more insight, somewhat more, or a lot more. This targeted approach provided a nuanced understanding of the educational impact, enabling us to gauge the effectiveness of the symposium in enhancing participants' understanding across a range of topics. Participants highlighted three key areas where they significantly enhanced their understanding: strategies for accounting for invisible service, insights into securing NSF CAREER grants, and tactics for maximizing their potential for journal publication.

This feedback from participants provides valuable insights that can inform the development of future FDS agendas. Understanding which topics resonate most with attendees allows organizers to tailor future sessions to meet the specific needs and interests of participants. By incorporating more content on these high-impact topics, FDS can ensure that it continues to provide relevant and valuable professional development opportunities for faculty members.

Participants were also queried about their professional expectations from the Faculty Development Symposium (FDS) with the question, "How do you think FDS will impact you professionally?" Even though 9.1% of participants expressed the belief that the symposium would have a little impact on their professional growth, the majority, constituting 59.1%, expressed confidence in a high impact. An additional 27.3% anticipated a good impact, reflecting a prevailing consensus that the Faculty Development Symposium (FDS) would likely yield positive professional outcomes for the majority of attendees. These responses underscore an

overall optimism regarding the symposium's potential to significantly influence and enhance the professional trajectories of the participants.

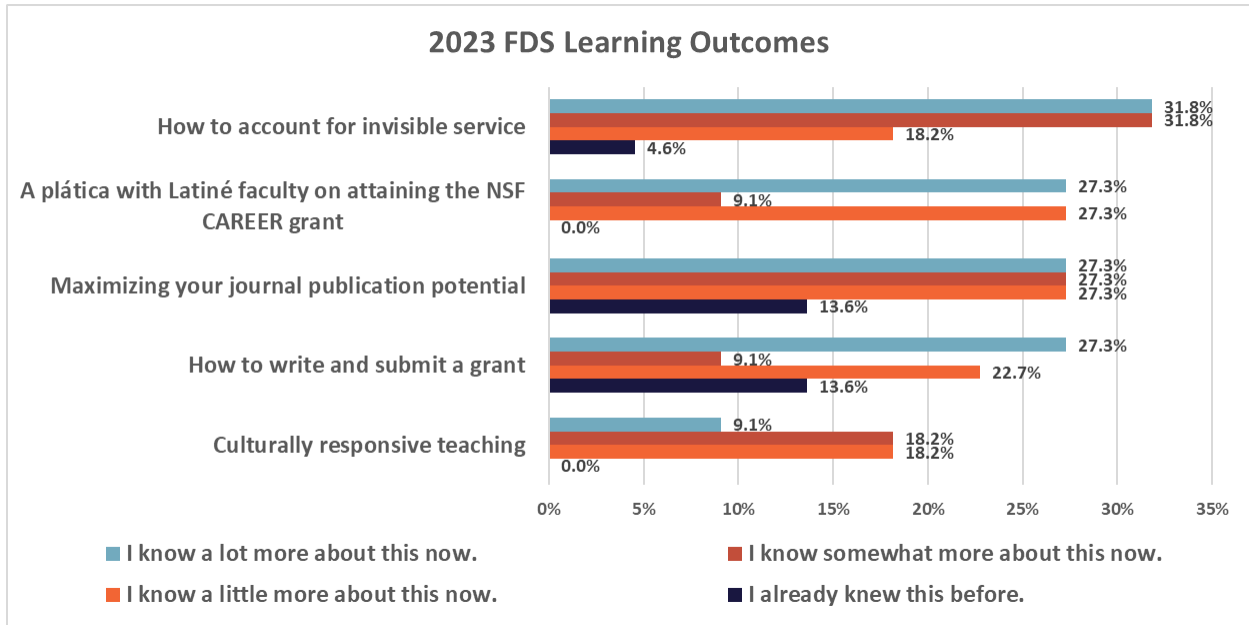


Figure 10 2023 FDS Learning Outcomes

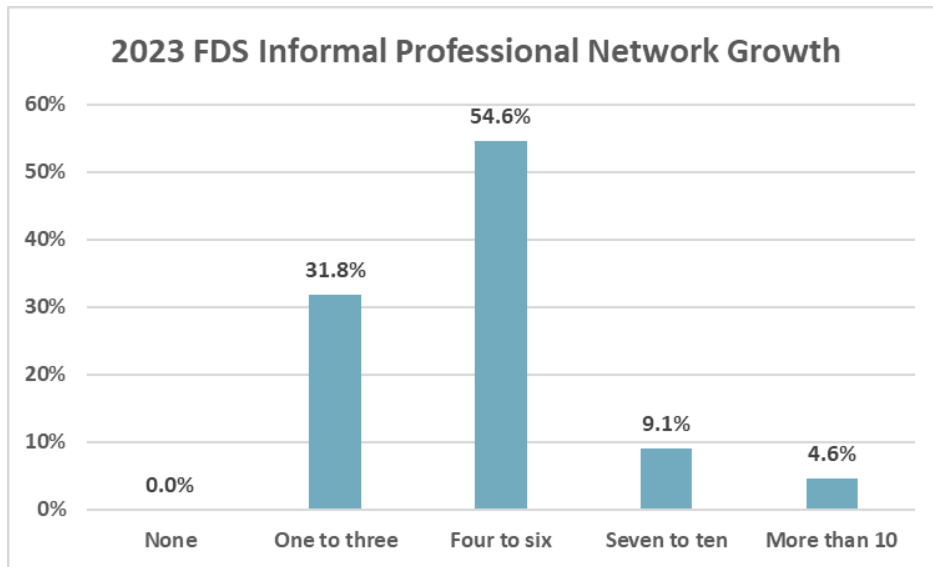


Figure 11 FDS Informal Professional Network Growth

We also inquire about Professional Network Growth, aiming to understand the extent to which attending FDS strengthens or extends participants' informal professional networks. Participants were asked, "How many new contacts have you made during this FDS that you expect to keep

contact with?" As illustrated in Figure 11, the majority, comprising 54.6%, indicated making 4 to 6 new contacts. In total, 68.3% of respondents expressed having made connections with 4 or more individuals during the symposium. These findings underscore the symposium's efficacy in facilitating valuable networking opportunities, which are vital for fostering collaboration, mentorship, and professional growth among participants.

During the feedback collection process, participants were asked three open-ended questions to gather qualitative insights about their experiences and suggestions for improvement.

When asked about the most useful aspects of the event, the responses revealed that opportunities for networking were highly valued, cited by 62% of respondents. Participants also appreciated the interesting and informative talks (19%), as well as the Career and Deans Panels (10%). A smaller percentage highlighted the significance of meeting federal agency representatives (5%) and the opportunity to assist junior colleagues (5%).

In response to the question about how the event could be improved, participants provided suggestions aimed at enhancing content variety (53%), extending the event duration, or adding more activities (37%), and providing materials such as agendas, schedules, and presentation slides beforehand (11%).

Lastly, when asked about topics they would like to see covered in future FDS events, participants' responses were diverse and varied, with no overarching themes identified due to the uniqueness of each response.

These qualitative insights offer valuable perspectives that can inform the planning and execution of future FDSs, ensuring that the event continues to effectively meet the evolving needs and expectations of its participants.

### **Focus Groups Findings**

In order to complement quantitative data with qualitative insights, focus groups were conducted by an external evaluator on March 2, 2023. Eight previous FDS participants engaged in discussions regarding the impacts of FDS on reaching their goals and potential areas for improvement. Overall, the feedback from participants provided compelling evidence of the program's positive impact, which has been sustained over time through their network of colleagues. Notably, most focus group participants were familiar with each other and expressed satisfaction at reconnecting during the session.

Despite the positive feedback, participants also offered constructive suggestions for improving future FDS events. Some recommended clearer communication regarding event logistics, while others suggested prioritizing essential information at the beginning of the conference to alleviate information overload towards the end of the day. Additionally, there was a consensus among participants for the establishment of a sustained mentorship program akin to the one offered to graduate students by SHPE, providing opportunities for ongoing support and guidance from senior faculty members. These suggestions aim to enhance the overall experience and effectiveness of future FDS events, ensuring continued support and professional development for participants.



Participants highlighted several key benefits of FDS, including the opportunity to share fears and questions with colleagues in a judgment-free environment, as well as valuable interactions with NSF program managers. Many participants credited FDS with providing insights into faculty life and requirements before committing to an academic path. Additionally, participants appreciated the chance to reengage with SHPE as faculty members and described how FDS helped them meet their goals, with some attributing significant career milestones to their participation.

Practical skills gained from workshops were also lauded, with one participant attributing their tenure success to their involvement in FDS. Notably, all participants expressed a willingness to recommend FDS to other faculty members. Moreover, participants offered advice to prospective attendees, emphasizing the importance of attending early and often.

### Focus Group Quotes

Below, examples of focus group quotes are shared, illustrating both areas for improvement and positive aspects of the FDS program.

#### Improvements:

- "I just attended the last meeting in 2022. To me, I think it was very good, but it was a little bit disorganized in the way I got the information. The information got to me late. And I was able to make it, but it was very hard. And I didn't know if I had to enroll in the entire conference or not. It was very confusing to me, but I was able to make it and very happy about it. So, I think a little bit more straightforward communication would have been better."
- "I understand that it's a conference, so it has to be everything in two days. Sometimes it was a little bit hard towards the end of the conference, especially at the end of the day to catch up with all the new information. I would suggest putting the more important information at the beginning. Because sometimes it was really, really hard at the end that there were some program officers, and it was already four or five pm."
- "I went two times. The first one, 2017, and then this past cycle. And then in between, nothing happened, which is probably my fault. But I think it would be better to have something sustained. There's a mentorship program for grad students that SHPE just started, and I participated there as a mentor. I was meeting with two mentees every two weeks. So, I think FDS should offer something similar, through which you can have some senior faculty sometimes just to chat. I don't know about the frequency. I think that would be helpful."

#### Positive Aspects:

- "I'm so happy to see so many friends here, believe me. And they're friends because of FDS. What I like the most is building community—knowing that you were not alone in the tenure process. There were other people that had the same goals and dreams and the same fears."
- "The main benefit has been the network that I have created here. I agree that the friends and the network you build up are very good."

- "Through FDS, I recruited a faculty member from a different university. She's been an important colleague to me."
- "The workshops were pretty helpful because they brought people from the Air Force and then also from NSF. It was helpful to have the time to talk one-on-one with the program officers as well from NSF and the Air Force and can see what are the ways that we can apply for grants."
- "I learned practical skills like branding myself. So, I'm always putting things on LinkedIn to make sure that people know what I'm doing and record everything that I do at all the different meetings."

### **Limitations and Next Steps**

As the FDS aimed to empower and support Hispanic engineering faculty, its implementation journey was marked by both successes and challenges. One significant challenge encountered during the implementation of FDS was the limited financial resources available to support faculty attendance. While the symposium garnered considerable interest and enthusiasm from participants, the financial constraints associated with travel expenses hindered broader participation, particularly among Hispanic faculty members from under-resourced institutions. To overcome this challenge, innovative strategies such as seeking additional funding sources, negotiating discounted travel arrangements, and providing virtual attendance options can be explored. These efforts aim to enhance accessibility and inclusivity, ensuring that all Hispanic engineering faculty members, regardless of financial constraints, could benefit from the valuable resources and networking opportunities offered by FDS.

Another challenge faced during the implementation of FDS was the need to balance the diverse needs and expectations of participants from various career stages and institutional contexts. Early-career faculty members, tenure-track faculty, and non-tenure-track faculty often have distinct support needs and professional development goals. Tailoring the content and format of FDS sessions to cater to these diverse audiences while maintaining cohesion and inclusivity poses a considerable organizational challenge. To address this, a multifaceted approach can be adopted, incorporating targeted workshops, panel discussions, and networking events designed to meet the specific needs of each participant group. Additionally, fostering a culture of collaboration and mutual support among participants facilitated knowledge sharing and peer mentoring, enriching the overall FDS experience.

Throughout the implementation of FDS, several valuable lessons were learned, providing insights into areas for improvement and refinement. One key lesson was the importance of ongoing communication and engagement with participants before, during, and after the symposium. Building and sustaining relationships with Hispanic engineering faculty members required proactive outreach efforts, personalized communication channels, and responsive support mechanisms. Additionally, leveraging technology and digital platforms to enhance virtual participation and engagement emerged as a valuable lesson learned during the COVID-19 pandemic. Integrating virtual components into future FDS events could extend accessibility and reach, accommodating diverse schedules and geographic locations.

Moving forward, potential areas for improvement in the implementation of FDS include strengthening partnerships with Hispanic-serving institutions (HSIs) and professional organizations, enhancing cultural competency and sensitivity in program design and delivery, and expanding the scope of mentorship and support networks for Hispanic engineering faculty. Collaborating with HSIs to co-host regional FDS events, incorporating culturally relevant content and perspectives into session topics, and fostering mentorship opportunities between senior Hispanic faculty members and early-career scholars are strategies that could enhance the impact and effectiveness of FDS. By embracing these lessons learned and proactively addressing challenges, FDS can continue to serve as a vital resource and catalyst for the success and advancement of Hispanic engineering faculty in academia.

In evaluating the effectiveness of our program, it's crucial to consider the composition of our participant pool, which primarily consists of tenure-track faculty with substantial teaching commitments. This demographic characteristic may influence the perceived value of certain sessions, particularly those addressing teaching-related topics like culturally responsive teaching. The high ratings of these sessions could stem from the content's relevance and applicability to participants heavily engaged in teaching responsibilities, indicating that our program effectively addresses the needs of faculty balancing teaching, research, and service commitments, offering valuable insights and strategies for enhancing their teaching practices.

Looking ahead, a critical area for future analysis is comparing session effectiveness across different faculty groups, such as tenure-track versus non-tenure track. This comparative analysis could reveal whether certain sessions are more beneficial or relevant to specific faculty cohorts, providing insights for tailoring our program to better meet the diverse needs of all faculty members. Additionally, it's important to explore the unique effectiveness of our workshop for Hispanic faculty compared to workshops targeting all faculty. Understanding why Hispanic faculty find our workshop particularly valuable could offer insights into designing and implementing future programs aimed at supporting Hispanic faculty and other underrepresented groups in academia.

## **Conclusions**

In conclusion, the underrepresentation of Hispanic faculty in engineering academia remains a significant challenge, as highlighted by the ASEE report "Engineering by the Numbers." However, initiatives like the FDS play a crucial role in addressing this challenge by providing targeted support, resources, and networking opportunities to Hispanic engineering faculty. By empowering participants with the skills and knowledge necessary to navigate the complexities of academia, FDS contributes to the cultivation of a more diverse and inclusive engineering community. Furthermore, the success of FDS underscores the potential for proactive, community-driven interventions to drive meaningful change and promote excellence in engineering academia. Looking ahead, it is essential to continue supporting and expanding programs like FDS to foster greater diversity, equity, and excellence in engineering education and research.

In considering potential larger or different contexts for this work, future efforts could focus on establishing collaborative partnerships with other institutions or organizations to scale up the impact of such initiatives. Additionally, research could be conducted to explore the long-term effects of programs like FDS on the career trajectories and professional success of Hispanic engineering faculty. By continuously evaluating and refining these interventions, we can better understand how to support underrepresented faculty and advance diversity and inclusion in engineering academia on a broader scale.

Advancing Hispanic engineering faculty's future careers in academia is crucial for several reasons. Firstly, diversity in academia enhances the quality of research and education by bringing diverse perspectives and experiences to the table, ultimately leading to more innovative solutions to complex problems. Secondly, supporting Hispanic faculty contributes to the overall goal of creating a more equitable and inclusive academic environment, where all individuals have equal opportunities for success. Finally, investing in the professional development of Hispanic faculty not only benefits the individuals themselves but also has broader societal impacts, as it helps to address systemic inequities and build a more representative workforce in the engineering field.

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