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GRADS (Graduate & Advance Degree Students) Mentoring Groups: Building a
Supporting Community for Hispanic Graduate Students in STEM

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An industrial engineer by training, before joining SHPE, Dayna was a faculty member in the Mechanical and Industrial Engineering Department at Northeastern University in Boston, MA after working at their Healthcare Systems Engineering Institute (HSyE) as a post-doctoral research fellow.

Native from San Juan, Puerto Rico, Dayna graduated with a bachelor's degree in industrial engineering from the University of Puerto Rico, Mayagüez Campus and then she completed a master's and PhD degree in Industrial Engineering from the University of South Florida in Tampa.

Being Hispanic and an engineer herself, Dayna has a passion for increasing Hispanic representation in STEM. She currently lives with her husband Andrés, their two sons David and Sebastián, and their miniature schnauzer Lucca in Winter Garden, Florida.

Susan Arnold Christian

Susan Arnold Christian currently serves the Society of Hispanic Professional Engineers as a Manager for the Research & Innovation office. She helps lead the MentorSHPE and InternSHPE programs in this role. In her former roles she has served as the Assistant Director for the Center for the Enhancement of Engineering Diversity (CEED) at Virginia Tech in Blacksburg, VA from 2010-2020. Prior to joining Virginia Tech in September of 2010, she served as the Outreach Program Coordinator for the Women in Engineering & Science Program at Kansas State University from 2000-2010. She began her work in STEM outreach and student support at Girls to Women, a private not for profit in Kansas City, in the late 90's. She has also served on the board for WEPAN from 2012-2014. She earned her M.S. in Youth Development from the University of Nebraska and her B.S. in Family Studies at Kansas State University.

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Upon completion of her Bachelor of Arts degree in International Development Studies at UCLA, she began a successful career in banking and finance at Bank of America, Merrill Lynch. Driven to pursue a career in public service, she completed her MPA at California State Polytechnic University, Pomona, and MBA at Cornell Tech. She was a leadership fellow in the Southern California Leadership Network's Leadership LA program and recently completed her Diversity and Inclusion Certificate from eCornell. Currently, she is completing her doctoral studies at the USC Price School of Public Policy where she is a PhD Candidate.

Andrea D. Beattie

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 a Manager, Research and Innovation at SHPE. In this role, she assists the organization with research, program evaluation, and data analytics.

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Ashleigh Tierney

Ashleigh currently serves as a Director of Research & Innovation at SHPE. In this role, she leads the MentorSHPE, InternSHPE, ScholarSHPE, SHPE Academy, and professional development programs. She is passionate about helping college students form meaningful, goal-aligned connections with peers, professionals, and companies. To accomplish this, she uses a data-based approach to customizing best practices to fit the individual needs and goals of students and companies.

Ashleigh has worked for a variety of higher education institutions (large, public 4-year; small, private 4-year; community college) in a myriad of roles and offices. This varied experience has provided her with a first-hand understanding of the challenges and barriers college students face related to success, persistence, and degree completion. This understanding is key to the successful design and implementation of higher education adjacent programming at industry partners.

Ashleigh completed a BS in Biological Engineering at Kansas State University where she worked in the Women in Engineering and Science program. In this role, she witnessed the incredible impact targeted support and guidance can have for STEM students. She then completed an Med in Higher Education Administration and a Graduate Certificate in Institutional Research at Pennsylvania State University.

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

Dr. Kimberly D. Douglas is SHPE's Chief Research & Innovation Officer. She has over 25 years of experience as an engineering educator and designs programs and infrastructure for increasing the persistence and degree completion rates of STEM students, with a particular focus on the Hispanic and Latino community. Kimberly holds a Doctorate in Industrial and Management Systems Engineering from Arizona State University, and B.S. and M.S. degrees in Industrial Engineering and Management from Oklahoma State University. She has held tenured faculty appointments at Oregon State University and Kansas State University; her Professional Engineering license in the state of Oregon; and holds a DEI certificate from Cornell University. Dr. Douglas served as Editor-in-Chief of the Journal of Women and Minorities in Science and Engineering for 10 years and is a past President of WEPAN.

GRADS (GRaduate & Advance Degree Students) Mentoring Groups: Building a supportive community for Hispanic graduate students in STEM

Background/Motivation

Research shows the importance of mentoring for student success, and this is particularly important for graduate students in engineering [1]. However, most graduate students do not have a mentorship relationship outside of their faculty advisor and many times this relationship might not go beyond academics [2]. Results from a recent Needs Assessment conducted by Society of Hispanic Professional Engineers (SHPE) during 2021-2022 shows that approximately 25% of predominantly Hispanic graduate students do not have a mentorship relationship at all.

Hispanic graduate students have specific and unique needs and challenges when earning an engineering graduate degree [3]. Examples include having a lack of understanding of hidden curriculum, living in the US for the first time, having English as a second language, being one of the few or only Hispanic students in their graduate program, and unfortunately, even racial discrimination [4].

To better support Hispanic GRADS (GRaduate & Advanced Degree Students), a mentoring program, GRADS Mentoring Groups (GMG), was designed and implemented in 2022. GMG utilized a mentoring circles framework [5] and focused on the themes most relevant for Hispanic graduate students to develop skills that can help them survive and thrive in graduate school and beyond [6]. This program provided GRADS with a safe space where they had the opportunity to create community and also discuss professional experiences and challenges with more experienced colleagues and facilitators.

This paper discusses the program objectives and gives a comprehensive description of the GMG program, shares results from Spring and Fall 2022 cohorts, and provides future direction and next steps for program improvements in the future.

Program Description

Objectives and Overall Description

The GMG's primary objective was to support the need for Hispanic and Latinx graduate students to develop skills that could help them survive and thrive in graduate school and beyond. Another important objective was to provide these students with a safe space where they could discuss professional experiences and challenges with more experienced colleagues and mentors.

A mentoring group format was chosen because there are many benefits for this type of mentoring approach:

- Increases the diversity of input and perspectives
- Provides a mechanism for accountability that makes mentoring effective
- Setting goals is easier with more perspectives contributing to the process
- Reaching multiple mentees is more efficient
- Allows all group members to lead and learn at the simultaneously

- Broadens the network of participants
- Offers a unique opportunity to create community

The program was offered in cohorts during the Spring and Fall. These cohorts engaged for 8 to 10 weeks and were facilitated by faculty or professionals with advanced degrees and were kept small (3-5 students per group) to allow for the development of meaningful relationships between mentors and mentees.

The groups were created and matched to a mentor based on topic preference, time zone, and availability for meetings. Each group focused on a different topic. These topics were offered as a guideline for group discussions, but often added other topics based on the specific needs and challenges of mentees. The topics have evolved over each cohort iteration. New topics have been added based on the recommendations of participants.

The program included training for mentors, a kick-off meeting, a mid-program check-in, as well as a closing meeting. Evaluation consisted of a combination of surveys and focus groups. Additional details on the different program components are included in the following sections.

Platform

Chronus, a mentoring software platform that helps start, manage, and measure mentoring programs, was used for GMG. The software can also be used to match mentors and mentees and manage all other important operational aspects of the program.

For GMG, the matching algorithm feature provided by the platform has not been used because participants and groups have been small. As the program grows, additional criteria such as time zone and availability could be used to match mentors and mentees automatically in addition to topic preference.

Chronus also provided mentors and mentees with a space to communicate and meet. The platform kept track of interactions and engagements such as meetings and messages. The application process was done through the platform in addition to all surveys for program evaluation.

One of the challenges with this group format was that most of the groups used alternate communication tools outside of Chronus. This made collecting data on group meetings and messaging interactions not as robust as other one-on-one mentoring programs offered. Through conversations with mentors in the midpoint check-in, it was found that many graduate students primarily used apps such as WhatsApp and getting them to transition to another app was difficult. As a result of this discovery, additional work has been done to ensure that participants understood the importance of using the tool to at least track meeting data and providing feedback in surveys.

Matching Criteria

The matching criteria used for SHPE's GMG program was quite simple. The main criteria used was the mentorship topic of preference. Mentees were asked to rank their top 3 choices and that information was used to create the groups. Time zones and availability for meetings were not

used since the number of mentees and mentors was small and only one group per topic was available.

Mentors were also asked for their topic of preference and that information was used to assign groups to them. Mentees and mentors were matched according to their topic of preference. 100% of mentors and mentees were placed in either their first or second topic of preference. The most recent list of topics is listed in Table I.

TABLE I

LIST OF TOPICS FOR GMG

Group	Description
Writing	This group centers on helping participants with writing. This could include papers, thesis, or dissertation. Together with their mentor, they go over practical advice to help them through their writing project.
Preparing for a job in academia	This group covers different topics that pertain to preparing to apply for a job in academia such as: how to search for jobs in academia, the academic job market timeline, how to prepare for the job market, and others.
Preparing for a job in industry	This group covers different aspects that pertain to preparing to apply for a job in industry, such as: how to search for jobs, leveraging their personal network, preparing their resume, and getting ready for an interview.
Collecting data and keeping a lab notebook	This group goes over practical tips to keep experiment data organized.
Conflict resolution	This group goes over strategies for conflict resolution that can help them navigate delicate professional relationships with colleagues, professors, and advisors.
Public Speaking Skills	This group goes over tips and tricks to develop public speaking skills. It also gives them an opportunity to practice the skills as they receive peer and facilitator feedback.
Sustainable Networking	This group explores the skills of sustainable networking that is designed for both parties to benefit and increase success.

As the program grows, multiple options per topic group could be offered, in which case time zone and meeting time preference could be used to further match mentors with mentees and be grouped in ways where participation could be further facilitated.

Recruiting and Participant Selection

Mentors and mentees were recruited by sharing the opportunity directly with them in the following ways:

1) A direct email was sent to all SHPE graduate student members as well as faculty inviting them to apply.
2) The opportunity was shared through social media (Facebook, Instagram, LinkedIn) with a link that took them to the application. Fig. 1 shows an example of a social media post used to recruit participants for the Fall 2022 cohort.
3) The opportunity was shared in the newsletter, SHPE Nation, as well as the graduate student newsletter, SHPE con GANAS.

Fig. 1 Social media post to recruit participants.

Because of the limited capacity potential this program did require an application to participate rather than a simple sign-up process. The application asked for demographic information such as time zone for group placement purposes but also asked for a statement of interest and questions or topics they hoped to talk about in their groups. This information was shared with mentors when they received their group lists so they could get to know the needs of their students. An honorarium was offered to mentors for their time.

In Fall 2022, all participants who applied were accepted. As the program grows, criteria to filter will be considered if needed. So far, more applications for mentors have been received than needed so all applicants have been able to participate. Any mentor applicants not able to participate in the cohort were offered to participate in other mentoring programs.

<u>Mentor Orientation</u>

A virtual mentor orientation was offered at the start of each cohort. The orientation created community among the mentors and provided an overview of the program timeline, training on the Chronus platform and mentoring best practices. During this orientation mentors that had participated in the program before were encouraged to give advice and lessons learned to the

new members of the group, as well as any content or materials produced for their previous GMG experiences to pass on to new mentors.

<u>Meetings</u>

The GMG program started with a virtual kickoff meeting with the group members at the start of each cohort. During this meeting, they were offered similar content given to the mentors during their orientation, the strengths and challenges of group mentoring were also discussed. The concept that group mentoring was a balance of what the individual receives and what they bring to the group was introduced, and group members were asked to make a commitment to their peers that they will show up to meetings even when they feel the agenda doesn't meet their needs but realizing they could bring a perspective to the discussion that might be useful to others.

Meetings started with introductions where each mentee was given time to share who they are and why they chose to participate. Since a large part of the goal of this program was creating community among underrepresented graduate students, mentees were given time to connect with each other.

After the introductions, groups were reminded of the overarching goals of the program as well as details on the goals that specifically pertain to mentees. The first part of this list relates back to group growth and accountability. Receiving and contributing to the peer mentoring element and support they give each other was the foundation for this program. The role of the mentor was also introduced, mentors were meant to be facilitators and expectations of what that role brought to the group were clearly stated during this meeting. Broadening the understanding of the role, mentees were introduced to the concept that they could also gain leadership skills by participating in a group mentoring program. By bringing their experiences, lessons learned and thoughtful provoking questions they could help lead the group to a higher level of growth and understanding of their topics. And finally, the broadened network they were creating in their circles with each other, and their mentor was emphasized.

During this meeting the schedule for the semester was also covered and the time commitment expected to get the most from the program was discussed. In laying out the meeting schedule expectations and community building, mentees were expected to give at least 8-10 hours of their semester to this program.

After the kickoff meeting, groups were encouraged to create their own meeting schedule and program goals. The suggested time commitment was at least 6 meetings during the program's duration. The program ended with a closing event, where mentees and mentors were given the opportunity to share their experiences during the program.

Surveys and Evaluations

Several surveys and evaluations were done throughout the length of the program. This includes a midpoint check-in, a check-in after each meeting, and a closing survey.

<u>Midpoint survey</u>

In the midpoint mentors and mentees were asked questions relating to their progress towards goals, their overall satisfaction with their mentoring grouping and overall satisfaction with the mentoring platform. Their overall satisfaction with the different program elements such as the connection plan tasks and suggested activities was also assessed as well as reference materials, communications, relationship with mentor and mentees, weekly group meetings, and discussion board.

At this point, mentors were contacted by the team to learn from them how things were going and to give another opportunity for learning between groups. The most common point of discussion was how to engage members and issues related to attendance. Some advice from facilitators to combat these issues centered on communication and planning as well as shifting some of the planning responsibilities to the group. This recommendation was made because when that shift takes place and mentees are driving the group connection, they participate more fully in the meetings and attendance improves.

Doing a midpoint check-in helped in learning about any issues with enough time to take any corrective action necessary to improve both mentors and mentees program experience and expectations.

Closing survey

The closing survey was very similar to the midpoint survey. In this survey their overall satisfaction with the program and group connection was assessed as well as inquiring if they had achieved all the goals set at the beginning of the program, and their overall satisfaction with the different program elements.

This information was used to understand the program's impact on participants as well as to gather feedback for continuous program improvement.

Post meeting surveys

During the Fall 2022 post-meeting surveys were included in program evaluation to get a better sense of participant's engagement.

Mentees were asked about their perceived quality of the discussion and to rate their personal engagement with the discussion. Mentors were asked about the quality of the discussion and their observation of attendance at each meeting.

Focus Groups

To be able to provide additional results focusing on the success of the program beyond perceptions of satisfaction, a focus group was conducted with six participants (all mentees) who were part of the Spring and Fall 2022 cohorts of GMGs. The focus group was conducted by an external evaluator, and a high-level summary of findings is provided in the Results section.

Results

The GMG program was piloted during the Spring of 2022, and since then two cycles with two different cohorts have been completed. The cohorts had a total of 6 groups during the Spring of

2022 with six mentors and 32 mentees. The topics covered during this cohort included writing, preparing for a job in academia, and preparing for a job in industry. Each topic had two groups.

The Fall 2022 cohort had a total of 7 groups with 7 mentors and 31 mentees. The topics covered included writing, preparing for a job in academia, preparing for a job in industry, collecting data and keeping a lab notebook, conflict resolution, public speaking skills, and sustainable networking. Each topic had one group.

So, in total, this program has served a total of 58 mentees and 12 mentors with one mentor participating in both Spring 2022 and Fall 2022.

About 39.65% of mentees for both cohorts identified as female and 41.38% as male, others identified in other categories such as non-binary or N/A. For mentors, 25% identified as female and 50% as male, the other 25% identified as non-binary or N/A.

92.86% of participants identified as Hispanic/Latino and most of them self-identified as having Mexican origin, followed by Peru, then Puerto Rico and Colombia.

Spring 2022 Cohort Survey Results

Midpoint Survey

The midpoint survey was completed by both mentors and mentees with a response rate of 59.38%. At this point 15.79% of respondents indicated they had either completed or were ahead of schedule in completing their goals, 52.63% indicated they were on track, and 26.32% said they were either behind schedule or had not started setting goals. In terms of easiness of use of the platform, 38.89% indicated that the platform was either easy or very easy to use, while 61.11% indicated that it was moderately or slightly easy to use.

When asked about their overall satisfaction with their mentoring partnership, 89.47% indicated they were either satisfied or very satisfied. At this point, they were also asked to rate the usefulness of different program elements. Table II, on the following page, shows the participant's overall satisfaction with the different program elements. As noted, most of them were rated either very or extremely useful. The most useful elements were the relationship with the mentor and weekly meetings. The ones considered less useful were the discussion board, the relationship with other mentees, and the connection plan.

Closing Survey

The response rate for the closing survey was 42.11%. Most respondents, 93.75%, indicated that they were either satisfied or very satisfied with their group connection. In terms of overall satisfaction with the program, 37.5% indicated to be satisfied, 37.50% neutral, and 25% indicated to be dissatisfied.

When asked about achievement of the goals set at the beginning of the program, 25.00% reported that they had achieved all goals, and the other 75.00% indicated that they had achieved some of the goals.

TABLE II

	Extremely Useful	Very Useful	Moderately Useful	Slightly Useful	Not at all useful
Connection Plan	36.84%	26.32%	26.32%	5.26%	5.26%
Reference Materials	27.78%	44.44%	16.67%	5.56%	5.56%
Communications & Emails	31.58%	42.11%	15.79%	10.53%	0.00%
Relationship with Mentor	63.16%	26.32%	5.26%	0.00%	5.26%
Relationship with Mentees	27.78%	38.89%	16.67%	5.56%	11.11%
Weekly Meetings	50.00%	27.78%	11.11%	11.11%	0.00%
Discussion Board	27.28%	11.11%	22.22%	33.33%	5.56%

Table III shows the participant's overall satisfaction with the different program elements at the end of the program. As noted, most of them were rated either very or extremely useful. At this point most elements of the program were rated as either very or extremely useful. None of them were rated as not at all useful.

TABLE III

CLOSING SURVEY SATISFACTION WITH THE DIFFERENT PROGRAM ELEMENTS FOR THE SPRING 2022 COHORT

	Connection Plan	Reference Materials	Communications and Emails	Weekly meetings	Discussion Board
Extremely useful	43.75%	43.75%	50.00%	68.75%	31.25%
Very useful	25.00%	31.25%	25.00%	25.00%	31.25%
Moderately useful	25.00%	18.75%	25.00%	6.25%	25.00%
Slightly useful	6.25%	6.25%	0.00%	0.00%	12.50%
Not at all useful	0.00%	0.00%	0.00%	0.00%	0.00%

Post-meeting survey

For the Spring 2022 cohort, surveys were included after each meeting, 96.97% of participants reported having either a very or strong discussion, only 3.03% reported their discussions as being "ok". In terms of attendance it was divided, with 48.48% reporting that most of the group showed up, 42.32% reporting that only one or two members showed up, and 9.09% reporting

that everyone showed up. Participants also rated the different program elements and results are shown in Table IV.

TABLE IV

POST-MEETING SURVEY SATISFACTION WITH THE DIFFERENT PROGRAM ELEMENTS (SPRING AND FALL 2022 COHORTS COMBINED)

	Connection Plan	Reference Materials	Communications and Emails	Weekly meetings	Discussion Board
Extremely useful	42.42%	21.21%	39.39%	54.55%	39.39%
Very useful	33.33%	45.45%	39.39%	39.39%	36.36%
Moderately useful	12.12%	15.15%	15.15%	3.03%	24.24%
Slightly useful	0.00%	0.00%	0.00%	0.00%	0.00%
Not at all useful	12.12%	18.18%	6.06%	3.03%	0.00%

During this survey, qualitative questions were also asked. These questions and quotes representing themes are included below.

- Could you [mentor] summarize what was discussed during this week's meeting?
  - *Met with students individually (30-1 hr. calls) since was not able to find time that worked for the entire team. This format worked well since each student is at a different stage in their job search. Had mock interviews (HR screening, technical interviews), resume/CV prep/review, confidence building, networking activities."*
  - *"Discussions focused on student perspectives of an academic career. Students shared what they would like to know as they consider an academic career. Students in the group are at different stages of their doctoral programs and therefore the individual discussions were most helpful for the mentor to understand the direction and goals."*

What was interesting about these quotes was that they both speak to the challenges of scheduling, but also show how mentors went the extra mile to make this experience the best for their mentees. When encountered with these challenges, these mentors came up with "out of the box" solutions such as mock interviews and individual discussions.

- What would you [mentor] say worked about this week's meeting?
  - *"The summary format worked well. Each student shared what they'd accomplished with respect to their academic or professional activity and specifically what they've done to prepare for an academic job. Each week students shared something about their week in general, community service activity, papers submitted, or proposal submitted, or major exams completed. These shared experiences bolstered the discussions and helped to connect the students and mentor."*

o *"I am really optimistic about this first meeting. I think it has helped everyone to get to know each other, feel in a safe environment as well as discuss what they want to get out of it. I think we set up realistic goals, like meeting for writing purposes or share information in the platform, etc... as well as review documents from other participants."*

This question helped follow up with mentors and gave the program managing team some feedback on best practices for meeting management that could be used for future cohorts such as: encourage to share experiences, the importance of creating a safe environment and setting realistic goals.

- What would you [mentor] say could improve this week's meeting?
  - *"Increase attendance to all members and involvement from all members. So far only half of members are actively involved during meetings."*
  - *"Finding a way to better communicate across the larger group."*
  - *"It is difficult to say because it was a really successful meeting where everyone learnt a lot. I am truly satisfied. The only con is one of the participants could not put their audio or video, so the interaction with her was more challenging through the chat."*

Program continuous improvement is of outmost importance and this question gave the program managing team the opportunity to identify areas of improvement. As seen in these quotes, this included increasing attendance and engagement, facilitating communications, and support in dealing with technical issues.

Fall 2022 Cohort Survey Results

Post-meeting surveys

For Fall 2022, surveys after each meeting were conducted as well and divided into mentors and mentees. For the mentee post-meeting survey, 90.91% of participants reported having either a very or strong discussion, only 4.55% reported their discussions as being "ok", and 4.55% reported them to be "weak". Mentees were also asked to rate their personal engagement in meeting discussion, 81.81% reported to had contributed either some or a lot to the discussion and 18.18% reported to just listen and not contribute much at all.

Mentees were also asked if there was something they thought they could do to improve the meetings or the program in general, below quotes are shown from this open-ended question. Here they suggested having a closure meeting for everyone so that they had the opportunity to meet mentees and mentors from other groups. They also suggested matching groups not only by interest in the topic but by geographic region.

For the mentor post-meeting survey, 80.64% of mentors reported having either a very or strong discussion, and 16.13% reported their discussions as being "ok". In terms of attendance it was divided, with 25.81% reporting that most of the group showed up, 45.16% reporting that only one or two members showed up, and 25.81% reporting that everyone showed up. They were also asked to rate the different program elements and results are shown in Table V. Qualitative

questions were also asked in this survey, including questions about what was discussed, what worked during the meeting, and what could improve.

TABLE V

POST-MEETING SURVEY SATISFACTION WITH THE DIFFERENT PROGRAM ELEMENTS FOR FALL 2022 COHORT

	Connection Plan	Reference Materials	Communications and Emails	Weekly meetings	Discussion Board
Extremely useful	35.48%	35.48%	32.26%	38.71%	35.48%
Very useful	25.81%	16.13%	22.58%	32.26%	6.45%
Moderately useful	12.90%	6.45%	12.90%	6.45%	12.90%
Slightly useful	19.35%	22.58%	16.13%	6.45%	22.58%
Not at all useful	6.45%	19.35%	16.13%	16.13%	22.58%

Focus Groups

For the focus groups, questions focused on program impact, suggestions for program enhancement, and advise to other participants. The overall impact for participants provided evidence that the program had a positive impact on participants. Participants reported that the GMGs **helped them feel prepared to pursue careers in academia**. For example:

- *It definitely made me more confident in knowing that I can definitely get a job in academia and that that's the route I want to go. And that I want to do something similar to what my mentor is doing. I've always liked mentoring anyway. I'd like to use a lot of what I've learned to teach other Ph.D. students who are iffy about either academia or industry; just give them at least an insight into how it is.*
- *One of the goals of attending those sessions was to have a big picture of the academic interview process and how I can prepare now that I am a Ph.D. student. In this case, my mentor was a professor in engineering. Maybe not in my field, but it was in engineering. And then, my mentor was specifically appointed to the selection committee, so he knew a lot of information about how I should prepare my packets.*

Participants interested in careers in industry also reported that the GMGs **helped them meet their goals**. For example:

- *I did meet my goal of getting a job in the industry. And I would thank my mentor because he did heavily emphasize networking, and he helped me out a lot with just getting the confidence to start a conversation with somebody. And I think that helped me tremendously in getting my job.*

- *My mentor really helped me prepare for a variety of different industry experiences as well. So instead of pursuing just academia or a research position, he exposed me to other positions such as consulting, program management, et cetera.*

Participants reported that the GMGs **were valuable to them because of the connections they made with their faculty mentors as well as others outside the program**. For example, some reported that they enjoyed:

- *Being able to connect with my mentor. We ended up connecting on a very personal level, and he helped my significant other get a role at their company.*
- *I guess it started making me think a bit more about who I wanted to be and who could be my mentors. I met with my mentor a couple of times after that, and we still connect probably every couple of months. But he's also opened me up to the possibility of other SHPE mentors. I now have another mentor within SHPE who I think has even been more strategic and helpful than my original mentor.*

Participants also reported that they **appreciated being able to participate in a program designed to provide support directly to marginalized communities**. For example:

- *I think it's awesome that SHPE is doing this because graduate students tend to be forgotten at the university, especially folks from marginalized communities. I think it's awesome that there's more graduate student programming for folks that are looking for different opportunities to advance their careers.*
- *I definitely see the benefits of having this because it's not something that I have at my university, especially from somebody that understands our community well.*

One participant reported that they **learned valuable lessons beyond the topics addressed in the GMGs**. For example:

- *My mentor was able to give us his personal experience plus what he's even had to go and research himself for something of what's happening now when you're getting a job in academia. So that itself really helped me understand what is my next step, especially since it was me when I was ending my second year in the Ph.D. program, and the other student was just about to graduate and defend their thesis. So we both had good mentoring, and we were at different levels, and he was prepared to give us both the insight into everything while working individually with us.*

All but one of the participants reported that they **would recommend the GMGs to other students**. For example:

- *I completely recommend the program. It was great, and I loved it, and I'm sure it would've been a lot more helpful if I had somebody a little bit more knowledgeable about what I was doing. I feel like it has a lot of potential to grow.*
- *The remote mentorship groups were a good starting point for some of the conversations. But I feel like for a lot of the specific questions I had, more knowledge was gained at the SHPE national convention; the track for SHPE grads or the Ph.D. track had a lot of the answers, and honestly, more detailed steps than what I saw in the mentorship group.*

Suggestions for Program Enhancement

During these focus groups participants were asked for suggestions on how to improve the program. The following major themes were taken from that discussion:

- More training for mentors
- More structure for groups
- Better group matching
- In-person contact

SHPE plans to use these results to make changes for the Fall 2023 cohort and make this experience more valuable to participants.

Future Direction

Moving forward, the focus for this program will be on taking the feedback from participants and adding more training for mentors, developing a more comprehensive structure for groups, including geographical location to the matching process, and evaluating opportunities to facilitate meeting in-person for those that are in nearby locations.

Overall, this program has been successful in creating an open and safe space for Hispanic graduate students to able to ask questions and be connected with other people in academia. Mentors recognized that the program has made significant progress in filling an unmet need for engineering Hispanic graduate students.

The hope is that programs like GMG can help Hispanic graduate students navigate and finish their graduate degrees in STEM by giving them tools and a community that can support them through that journey, contributing not only to the individual's life betterment and upward mobility, but also to the greater goal of filling the gap of Hispanic masters and PhDs graduates and increasing the representation of Hispanic faculty and administrators in academia.

Acknowledgements

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