Assessing the Effectiveness of the GradTrack Virtual Mentoring Program

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Abstract

Increasing the percentage of underrepresented minority (URM) students in engineering graduate programs is vital to developing engineering diversity. In the United States, the enrollment of domestic Black or African American and Hispanic students in doctoral programs is low (4.3% and 8.4%, respectively) compared to other races [1]. These percentages are even far less than their representation within the US population, 13.6%, and 18.6%, respectively [2]. Further, it has been shown that mentoring programs focused on URM undergraduate students positively impact their academic performance and retention [3]. However, an outstanding question is whether mentoring can help prepare URM undergraduate students for graduate school and whether mentoring of prospective graduate students (undergrad mentees) by current graduate students can help increase feelings of belonging for the graduate student mentors. This research study aims to address these questions through the lens of the community-driven mentoring circle structure of the GradTrack Scholars program [4].

GradTrack is a virtual mentorship program that strives to build an inclusive and supportive community geared toward increasing the success of undergraduate and graduate URM engineering students who are excited about Graduate Education [4]. The program has a unique online mentoring circle structure, pairing 2 graduate student mentors with 4-6 URM undergraduate student mentees from across the US. The program was established and ran a pilot in 2021. It completed its second year in Fall 2022, recording an increase in interest and growth of both graduate mentors and undergraduate mentees. Building upon the success of the pilot year of the program, this study formally examines the effectiveness of the GradTrack program in its second year.

Specifically, this study aims to address two questions: A) Does the GradTrack Scholars Program prepare participating undergraduate students for graduate school? and B) Does GradTrack assist in the professional development and sense of belonging for graduate student mentors? To evaluate these questions, this research paper uses pre- and post-event surveys and a focus group of mentors from the 2022 GradTrack cohort. This paper will also discuss modifications made between the first two years of the program. The results of this assessment and ideas for implementation across other institutions will be presented.

Introduction

Virtual mentoring is not a new practice, it has been in existence for over 20 years [5], [6] [7], [8], [9]. The online setting can seamlessly connect undergraduate students across the country with mentors, and the GradTrack program was initially started in 2021 during the COVID-19 pandemic. Virtual mentoring has also been shown to increase sense of community, STEM achievement, career self-efficacy, and drive to persist in mentors and mentees [10].

The GradTrack mentoring structure is a scalable group and peer mentoring model, with 2 graduate student mentors from Purdue with 5-7 URM undergraduate student mentees from across the United States and Puerto Rico joined in a mentoring circle. The second iteration of the program included goal setting, which has been shown to be an important element for mentoring activities [11]. All mentors and mentees were given an ActionPack at the beginning of the program, which was a document with expectations and details of meeting topics, assignments, links, sample wordings for emails and discussion questions. Additional GradTrack Mentoring program structure details can be found in McDermott et al., 2022 [4].

Mentorship has been identified as an important strategy to improve URM students' participation and retention in STEM [12],[13],[14]. Assessing the impact of mentorship can be instructive for policy and program development in recruitment and retention programs for new graduate students and faculty [15]. In the pilot year of the GradTrack program (2021-2022), acceptance rates of the undergraduate mentees into graduate programs were measured. Of the seniors in the program, 62% applied and were accepted to graduate school and 10% were awarded the National Science Foundation Graduate Research Fellowship (NSF GRFP). An additional 3 students who were juniors during the pilot program received the NSF GRFP this year. Overall, 95% of the mentees indicated that they would recommend GradTrack to their friends [4]. Building upon this initial assessment, the current paper completed a formal assessment of the program in its second year. This deeper analysis reports on the preparedness of the participating URM undergraduate students for graduate studies, evaluates the graduate mentors' professional development, mentorship skills and sense of belonging, and will allow for further program development.

Fostering sense of belonging has been shown to increase student performance and persistence [16], [17], [18]. However, there has been little work evaluating sense of belonging in STEM graduate communities [19]. In addition, it is important to have programs with an intentional focus on increasing the number of underrepresented minorities students in graduate school [20].

The research questions (RQ) addressed in this paper are:

RQ1. Does the GradTrack Scholars Program prepare participating undergraduate students for graduate school?

RQ2. Does the GradTrack Scholars Program help undergraduate students build community with each other and their mentors?

RQ3. Does GradTrack assist in the professional development and sense of belonging for graduate student mentors?

RQ4. What structural elements of the GradTrack program, if any, best support undergraduate student preparation and graduate mentor professional development and belonging?

In support of these research questions, this paper will review GradTrack program updates, analyze data, and discuss future directions. We will provide information about modifications made to the program over the two years of its existence and their impact. We will share data that suggests that the GradTrack Scholars program is helpful in preparing both undergraduate students for graduate school as well as increasing professional development opportunities for

current graduate students. Further, we will discuss how these results have the potential to provide a foundation for mentoring structures at other institutions as well as optimization of the program at Purdue.

Methods

Ethics Statement

Methods were approved by the Purdue Human Research Protection Program and Institutional Review Board (IRB), and all surveys and focus groups were completed in accordance with relevant guidelines and regulations. IRB: IRB-2022-503; *Assessing the effectiveness of the GradTrack virtual mentoring program.*

Population

The population for this study was restricted to participants in the 2022 – 2023 GradTrack year. The program had 26 graduate student mentors leading 13 mentoring circles. There were 73 undergraduate students at the beginning of the program. Throughout the program, 11 undergraduate students formally withdrew due to various reasons. The program ended with 62 undergraduate students.

Research Methodology

Data were obtained through voluntary surveys of 2022 – 2023 GradTrack mentors and mentees plus a focus group of mentors.

Links to online surveys were sent to the entire participant population, with different surveys dedicated to mentors or mentees. Surveys were administered to both mentors and mentees at the beginning of the GradTrack program (pre-event) and at the end of the GradTrack program (post-event). The surveys were anonymous, and responses made voluntary. Survey questions were aimed at learning how GradTrack might impact students. The surveys had both quantitative and open-ended questions. Pre- and post- survey responses were matched using a unique identifier created by having respondents answer a series of questions that kept their identity anonymous, (e.g., The first 2 letters of the city you were born in. For example, Indianapolis will be IN. The 2-digit number of the day of the month that you were born, October 5th will be 05).

19 mentees completed the pre-event survey and 25 completed the post-event survey. A total of 10 mentees completed both the pre-event and post-event surveys (Table 1). 14 mentors completed the pre-event survey and 15 completed the post-event survey. A total of 12 mentors completed both the pre- and post- event surveys (Table 1).

Table 1. Sample Size for the study

	Pre-event	Post-Event	Both Pre and Post
Mentees	19	25	10
Mentors	14	15	12

Focus groups with graduate mentors were held shortly after the last GradTrack meeting of the fall semester. One focus group was held in-person and a second focus group was held online, using the same questions, to give mentors options for how they wished to participate. Sessions were not recorded. All responses were kept anonymous. 9 mentors participated in the in-person focus group and 6 in the online focus group.

Data Collection

Qualitative data were collected by open-ended questions in both pre-event and post-event surveys. Further qualitative data were obtained in focus groups of graduate student mentors. These focus groups were voluntary and in accordance with Purdue's IRB and were offered in-person and online.

Quantitative data were obtained through the responses from both pre-event and post-event surveys. A Likert Scale was used to gather participants' responses. Responses were ranked using two different sets of quantifiers, such as 5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly disagree, or responses with the range of 5-A lot, 3-A little, 1-Not at all. The Likert Scale was then coded into numbers manually for data analysis, visualization, and statistics.

Data Analysis and Statistics

The Likert Scale numerical responses were averaged for each question of the pre-event and post-event surveys and graphed with error bars, representing the standard error of the mean (SEM). Statistical significance was determined by a Paired Sample *t*-test using Excel and verified by SPSS.

Structural Changes Implemented from GradTrack Pilot Year to Year 2

One goal of this assessment was to understand the impact of structural changes between the first and second years of the program (RQ4). These changes were a result of participant feedback, and the impact of these changes is included in the results section. The following methods-related changes were implemented.

Structural/timing changes: There were structural changes from 2 semesters (year-long) to 1 semester program implemented in the second year. Students in the pilot year expressed that with the two-semester format, they had new course conflicts in the spring semester that were not present in the fall. We hypothesized that this change from two semesters to a one-semester timeline would reduce melt in student attendance.

On campus component to complement virtual programming: While the virtual aspect of the program is helpful to increase access to mentoring and graduate school information, program evaluation data suggested that both mentors and mentees were looking for a deeper connection with their mentoring circles. Therefore, in the second year of the program, all seniors in the GradTrack program were invited to the Purdue Graduate Diversity Visitation Program (GDVP),

a multi-day on-campus visit with Purdue Graduate School and Engineering departments, administrators, faculty, and community.

Increased interactions between mentors: Mentors from the pilot program expressed that they were looking for more interactions with their circle co-mentors as well as the other mentors in the GradTrack program. Therefore, we implemented a Mentor Social at the start of the program, in addition to a Mentor Dinner at the end of the program, in order to promote additional interactions among mentors and to assess whether this increased mentors' sense of belonging.

Transition Meeting between Program Years: A transitioning meeting was organized before the start of the second year of the program. This was organized as an attempt to reduce pre-program melt and to serve as a form of meet and greet between mentors and mentees across both years of the program.

Results and Discussion

GradTrack improves undergraduate mentees' level of preparedness for graduate school (RQ1)

In order to study whether GradTrack increases the level of preparedness of undergraduate mentees for graduate school, we asked mentees a series of questions related to preparing for graduate school before and after being involved in the GradTrack program. Questions included how prepared a student felt regarding topics such as applying to graduate school or a summer research opportunity, funding, writing application pieces, talking with faculty, and factors for graduate school success.

In all categories, we see an overall increase of 19% in the total level of preparedness of GradTrack mentees during the program, and when we look at the change in preparedness by each mentee individually (before and after participating in the GradTrack program) we see that the majority of students increase in their level of preparedness, where each student is represented by a single line (Fig. 1). Interestingly, two students had no change in their level of preparedness depicted by the two flat lines (no change in

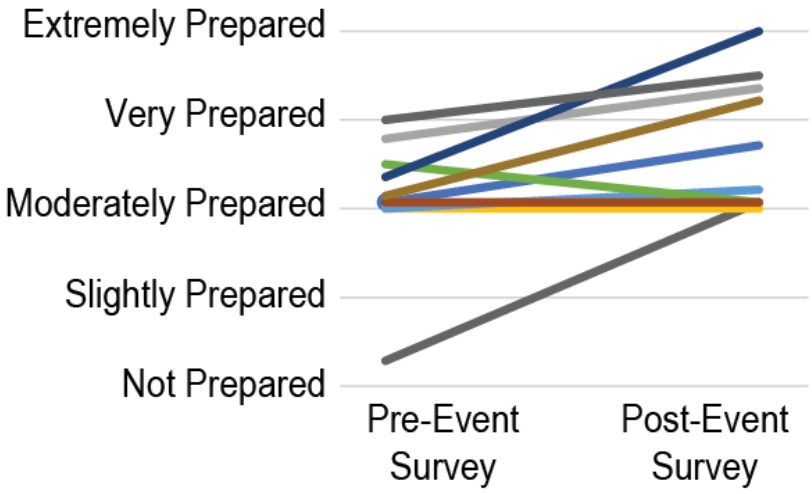

Figure 1. GradTrack increases the overall level of preparedness of undergraduate mentees for graduate school. Each line represents an individual participant response score before and after participating in GradTrack. Scoring is: Not prepared (1), Slightly Prepared (2), Moderately Prepared (3), Very prepared (4), and Extremely Prepared (5). *n* = 10 undergraduate student mentees.

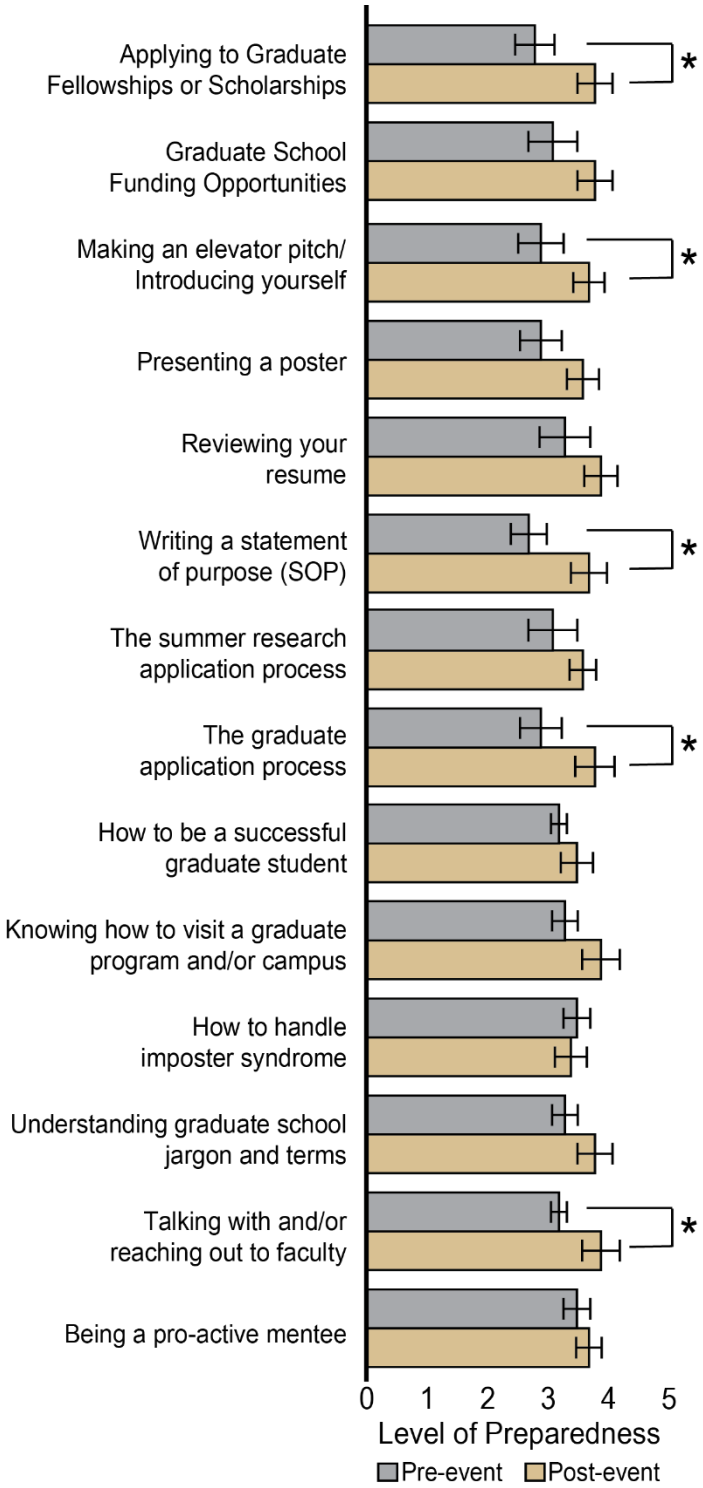

Figure 2. Level of preparedness of mentees on graduate school related topics before and after participating in GradTrack. Grey bars are pre-event, tan bars are post event. n = 10 undergraduate student mentees; *p <0.05, Paired Samples t-test. Error bars are standard error of the mean (SEM).

scores before and after participating), and only one mentee's level of preparedness decreased slightly after participating in the program (Fig. 1).

When we looked at the level of preparedness for specific topics, we found that the most significant increase in improvement between pre- and post-event appears to be in writing a statement of purpose (Fig. 2), which was also supported by qualitative survey data where the students indicated their favorite session was on writing a statement of purpose. We also see that GradTrack helps students feel significantly more prepared to apply for graduate fellowships or scholarships, to introduce themselves and/or make an elevator pitch, to tackle the graduate application process, and how to talk with and/or reach out to faculty.

GradTrack did not significantly increase mentees' feelings of being prepared on other graduate school related topics, although many graduate school related topics saw trending increases in levels of preparedness. The only category that did not see a trending increase was how to handle imposter syndrome, and this could be attributed to the fact that the subject was not extensively discussed during the program (only discussed during a 2-minute graduate student lightning talk).

GradTrack helps undergraduate mentees build community (RQ2)

In order to determine whether GradTrack helps undergraduate mentees build community, we asked the mentees if they felt they had a supportive community of peers, mentors, faculty, and administrators before and after the program (Fig. 3). Responses were ranked from Not at all (1), Somewhat (3), to A lot! (5). The results suggest that GradTrack increases undergraduate mentees' feelings of having a supportive community of mentors, faculty, and administrators (Fig. 3). While there is a trending increase in GradTrack mentees identification of having supportive peers, this is not statistically significant and therefore GradTrack does not currently increase undergraduate students feeling of community among their peers.

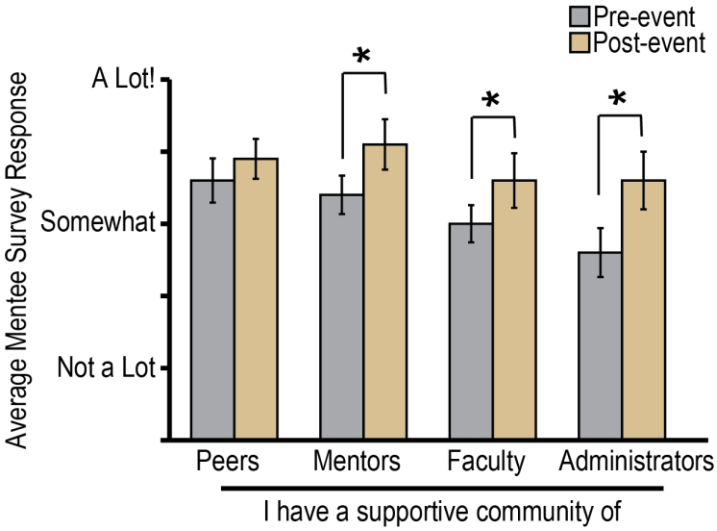

Figure 3. GradTrack increases mentees feelings of support. *n* = 10 undergraduate student mentees; *p <0.05, Paired Samples *t*-test. Error bars are standard error of the mean (SEM).

Two other questions that we sought to address were whether GradTrack helps mentees feel more connected to graduate students and the broader engineering community. When mentees were asked if they know graduate students they could relate to before and after GradTrack, mentees indicated a 41% increase in their confidence of knowing graduate students who they could connect with at the end of the GradTrack program (Fig. 4A). Further, when asked if they felt connected to a community of engineers, undergraduate mentees showed a 30% increase in their feelings of being connected to a community of engineers by the end of the GradTrack program (Fig. 4B). This data suggests that GradTrack increases mentees a sense of connectedness with two communities: 1) graduate students and 2) engineering community.

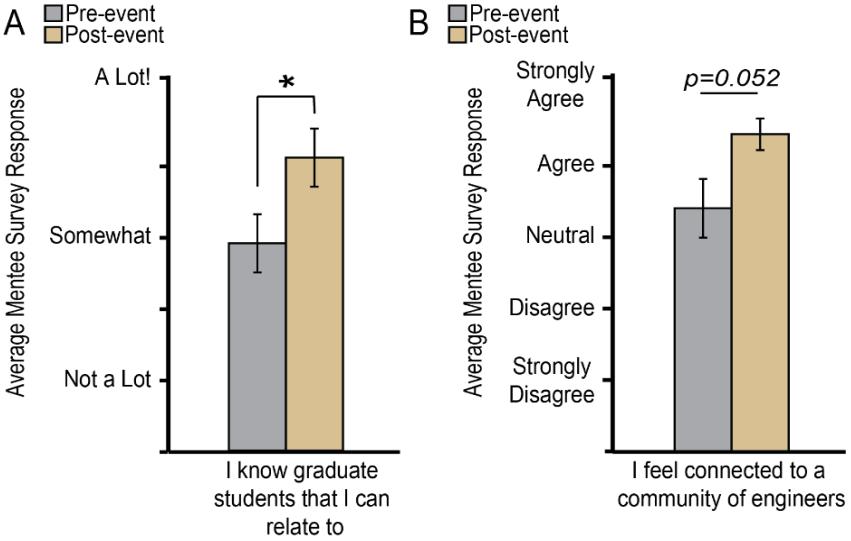

Figure 4. GradTrack increases mentees' feeling of belonging with (A) graduate students and (B) to the engineering community. n = 10 undergraduate student mentees; *p <0.05, Paired Samples t-test. Error bars are standard error of the mean (SEM).

GradTrack undergraduate mentees feel comfortable asking questions in their mentoring circles (RQ2)

To understand whether mentees felt comfortable asking questions in their small mentoring circle groups, we asked a post-event survey question using the Likert Scale to understand their level of agreement with the question, "*I feel comfortable asking questions in my group.*" Out of all mentees who filled out the survey (*n*=19), we found that no students disagreed or strongly disagreed with the statement. Over 75% either strongly agreed or agreed and only 16% were neutral on their answer to this question. This data suggests that undergraduate mentees in the GradTrack program feel secure to ask questions to their mentors and peers.

GradTrack assists in the professional development of graduate student mentors (RQ3)

In both the pre-event and post-event surveys, graduate student mentors were asked about their level of experience in professional development related areas. We found that GradTrack significantly increases our mentor's feelings of experience in three areas: reviewing application materials, reviewing resumes/CVs and moderating a roundtable discussion (Fig. 5). While our mentors did not express a significant increase in their level of experience of being a mentor by the end of the GradTrack program, there was a trending increase in this category (Fig. 5). Overall, graduate students reported that participating in the program increased their level of experience in working directly with undergraduate students (reviewing and moderating discussions), further enhancing their professional development.

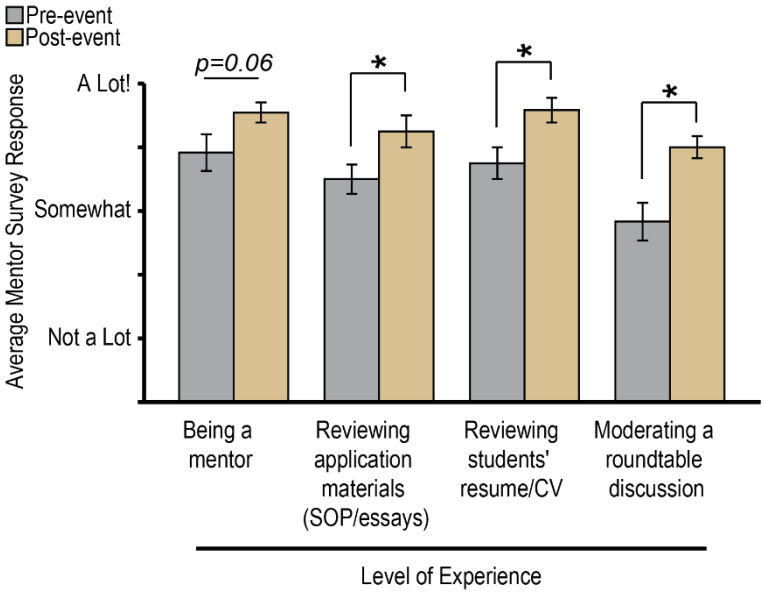

Figure 5. GradTrack increases experience in professional development areas for graduate student mentors. *n* = 12 graduate student mentors; *p <0.05, Paired Samples *t*-test. Error bars are standard error of the mean (SEM).

Further, graduate student mentors were asked about their professional development experience in focus groups, and the mentors all agreed that the training provided at the beginning of the program was sufficient to get them through the program. In the words of one mentor:

> "*When we started I was very nervous, but once we met the mentees, I realized that it was more life experience - more than any training that I needed. I was worried for nothing and felt pretty well set up."*

According to the mentors, more formal training might be weird to sit through, especially since they mostly need to share their experiences in circles. They did not think that a training is the best way of approaching this. When asked about measures to help connect graduate students, some mentors suggested having a mid-semester meeting between mentors to debrief and share ideas.

The current GradTrack program does not impact how supported mentors feel in their own graduate program (RQ3)

Since GradTrack positively impacts the level of support felt by mentees in the program (Fig. 3), we sought to ask the question of whether GradTrack also impacts how supported graduate student mentors feel. Interestingly, when mentors are asked if they felt connected to a community of peers, mentors, faculty, and/or administrators, GradTrack mentors report no change in their feelings of support between the pre-event and post-event surveys (Fig. 6).

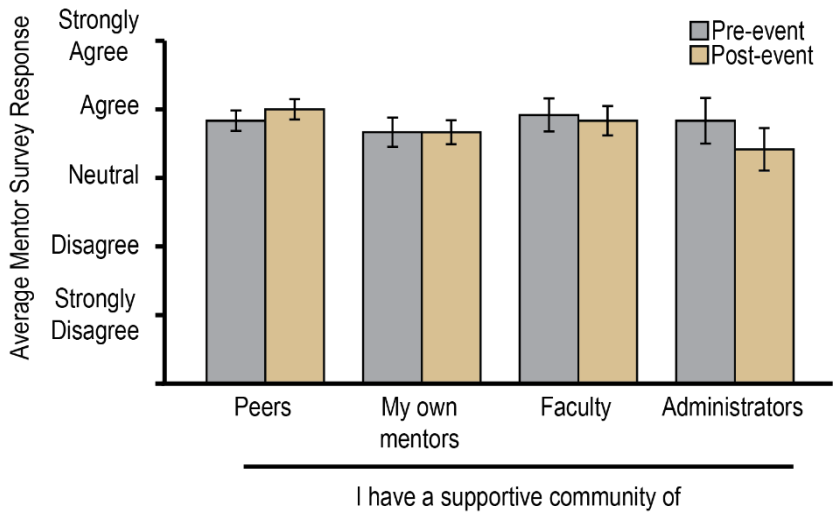

Figure 6. GradTrack has no impact on graduate student mentors feeling of support. n = 12 graduate student mentors; *p <0.05, Paired Samples t-test. Error bars are standard error of the mean (SEM).

While we did not see any change in mentor's sense of belonging among their peers, faculty and administrations (Fig. 6), the focus group sessions suggested that our mentors enjoyed their experiences mentoring students across the United States (different institutions and time-zones) and that it was a unique experience and structure. In their own words, they suggested that:

"Mentoring students across the United States was new and interesting"

"I liked that it was a structured mentoring program—but not overly structured, so it did not lose the personal aspect of it. Other mentoring programs are so constrained that it is hard to build connections with other people… but the structure helped so that I did not have to think about things out of the blue, so it gave a nice framework that was different from other programs that I was part of."

100% mentors and mentees recommend GradTrack

In the post-event survey, both undergraduate student mentees and graduate student mentors were asked if they would recommend being a GradTrack mentee or mentor to their friends. All respondents of the post-surveys said yes that they would recommend the program to a friend. These results suggest that GradTrack participants hold a favorable view of the program and serve as further evidence that the program is having its intended impact.

Further, in focus groups we asked mentors about their favorite and least favorite aspects of being a mentor in the GradTrack program. Most of the mentors identified their one-on-one meetings and breakout sessions with mentees as their favorite parts of mentoring. They stated that it aided in building stronger connections, and they could share their experiences as well as help their mentees prepare. They enjoyed the sense of helping someone else prepare, despite not having someone to help them like that. Some mentors also identified the on-campus component of the program as their favorite part because they were able to meet their mentees and meaningful interactions in person. Mentors stated:

> *"Seeing my mentees starting to ask each other what was happening in their lives, specifically this peer mentoring dynamic was my favorite part."*

> *"Having a community to talk about nerdy things and ambitions. Knowing that these are other people whose heads are in similar places as mine. This was cool to see."*

Thus, the GradTrack program exposed the mentors to the diverse facets of mentoring, provided a platform for mentors and mentees to be themselves, and allowed students to learn from each other.

When asked about the least favorite part of mentoring in GradTrack, a major theme was the disengagement by the mentees particularly toward the end of the program. The mentees drop off for reasons ranging from schedule/class conflicts to realizing graduate school was not the path for them. Connecting with students from different time-zones was somewhat challenging in some instances when students were too tired and reluctant to ask questions or speak. This quote summarizes the sentiment shared by many mentors:

> *"Disengagement by mentees was my least favorite part. You would think that if you have to apply to the program, then you would show up. I was surprised that some people did not want to participate after being selected."*

Results of GradTrack structural changes (RQ4)

Based on participant feedback in the pilot year of the program, we implemented the structural changes outlined in the methods section. We looked at data, surveys and completed mentors focus groups to determine whether these changes were impactful. These results are described in the following paragraphs:

Program timing: A key reason for restructuring the GradTrack program was to reduce population melt. We kept track of student attendance at every GradTrack meeting. Averaging the last three attendances at meetings for the program, compared to the number of students who attended the first meeting, the melt was 43% for the pilot year and 39% for the second year. Comparing the attendance at the first meeting to the last meeting, there was a 59% melt in attendance for the pilot year (August 2021 – April 2022) compared to a 51% melt for the second year (August 2022 – November 2022). This suggests that structural changes to the schedule helped reduce some, but not all, program melt.

Unlike the first year of the program, we also paid attention to students who took excused absences as well as those who directly withdrew from the program. Although the attendance melt for the second year was 51%, only 15% of the population formally withdrew from the program. 29% of students who were absent from the last meeting were still involved in the program in some capacity, involvement being defined as either completing assignments or meeting with their mentors.

On-campus experience: 36 GradTrack mentees participated in the on-campus diversity visitation program. From the results of the post-program survey, 40% of respondents indicated that the experience was useful in helping them build connections and consider graduate school. During the focus groups, mentors said GDVP helped them build connections with their mentees. This on-campus experience created a stronger connection between mentors and mentees and helped develop a more intentional cohort between mentors and mentees.

Increased mentor interaction: We saw more interactions between mentors with the mentor social at the beginning of the GradTrack program with 18 mentors in attendance. In focus groups, mentors confirmed that the meet and greet at the beginning of the program was helpful and fun. They expressed that these meetings helped them connect more with other mentors and they could bounce ideas off each other.

Transition meeting: The transition meeting helped give the new cohort of mentees and mentors a better idea of what to expect in the program. In support of this a mentor said:

> *"If you were a new mentor, you might need more of an introduction about how to open up. Having past mentors sharing experience at the transition meeting was helpful"*

In the pilot year of the program, when we look at pre-program melt (from student acceptance into program in May to attendance at the first meeting of the program in August), the program experienced 15% melt at the beginning of the program. For the second year during the same time period, there was a 10% melt. This reduction in melt at the beginning could be attributed to the mentees piqued interest from the transition meeting.

Additional mentors' feedback on program structure: As a part of this study, focus group sessions were helpful to learn more about the mentors' experiences in the GradTrack program.

Mentors confirmed that the program structure was well suited for its intended purpose. They described the program as being flexible to accommodate their mentorship needs as they could personalize the program particularly during the breakout sessions with mentees. Mentors agreed the meetings were well paced such that they were not too far apart to cause disconnections and not too closely spaced to get overwhelming.

In focus groups, mentors also acknowledged the benefits of having an ActionPack with a schedule, which helped guide conversations, especially when mentees had no questions. Mentors said that they liked having co-mentors, as mentors felt it was great to have an additional support system in place. Co-mentorship also provided a variety of experiences and points of view for the mentees. In terms of platforms for connecting, some mentors found the Microsoft Teams platform used for communication not very effective, because some students had trouble getting on.

While the mentors agreed that in some ways the content might have been a lot for one semester, they noted that all the content was important for students to prepare for graduate school. Mentors confirmed that there was a good balance of content, providing mentees with what they need to know to go from point A to point B. In support of this, a mentor said:

> "*Deadlines and things to submit might seem like a lot, but if they [mentees] really want to apply to graduate school at that moment, then the content will get them there and is what is needed. I wish that I had something like this that helped me (dates, writing, review, etc…).*"

A mentor also described mentoring undergraduate students who were not part of GradTrack, and that this mentor used the same strategies and resources employed in GradTrack. Mentors believed the program did its job by encouraging students who are interested in graduate school to take the next step.

Conclusion

Overall, this study suggests that the GradTrack program, while only in its second year, has a positive impact on both undergraduate student mentees and graduate student mentors. Undergraduate mentees have an increased level of preparedness in several graduate school focused areas. GradTrack helps undergraduate students increase their feelings of support, connectedness, and community from mentors, faculty, administrators and the engineering community more broadly. Further, GradTrack enables graduate student mentors to grow in their level of experience and professional development.

Interestingly, this study further raised some additional questions regarding how the GradTrack mentoring experience can impact the mentor's feelings of belonging and community support. Since we saw no change in the average survey response for mentors on feelings of support (Fig. 6), it allows us to think creatively regarding if/how GradTrack can continue to try to build community for current graduate students. One hypothesis is that we are hitting a maximum level

of survey response, however based on average scores this is unlikely. Further research is needed to determine if further adjustments to the GradTrack program structure could increase the feelings of belonging and community support for the graduate mentors. It is also possible that this full circle mentoring structure simply needs time to have an impact in this belonging space for graduate students. For example, we have seen mentees from the first year of GradTrack enroll in Purdue Engineering graduate programs and serve as mentors in the second year of the GradTrack program. This indicates that mentees-turned-mentors are interested in contributing to and building a community at Purdue Engineering. As the program continues to grow and establish itself, increased feelings of belonging and community may naturally emerge.

An important topic to discuss, and a future refinement that we plan to make to our study, is the incentivization of participants to respond to surveys. For this study all responses were made voluntarily, with no incentivization. Only 16% of undergraduate student mentees and 46% of graduate student mentors replied to both pre- and post-event surveys. Due to the low survey numbers, there is the possibility that there is volunteer bias in the data presented here. It is possible that only students who had favorable experiences in GradTrack may have filled out the survey. In the future, GradTrack program administrators plan to implement a small monetary incentive for both mentees and mentors in order to increase survey responses and robustness of data.

We have also previously discussed that there was programmatic melt from the start of GradTrack in August to the final meeting in November. While we have gamified GradTrack by developing the team/circle based GradTrack trophy to promote attendance at the 8 sessions during the fall semester and completion of assignments, we have anecdotally noticed that students drop (or melt) from the program for a few different reasons. The majority of melt comes from course conflicts that directly prohibit student attendance at meetings; however, we have also found that students drop because they are either no longer interested in being mentored and/or they are no longer interested in attending graduate school. GradTrack's goal is to demystify graduate school and the life of a graduate student and, while we would love to see all our mentees attend graduate school, we also view it as a positive outcome if students determine graduate school is not for them at this stage in their life. We encourage students to make informed decisions about their next step and to network accordingly.

Another goal of the GradTrack program is to develop an undergraduate community of students who are interested in Graduate School by increasing peer mentoring relationships between GradTrack undergraduate mentees. We show that GradTrack helps undergraduate mentees develop a community of mentors, faculty and administrators (Fig. 3), and that there is a trending increase in a supportive community of peers (Fig. 3), however this result is not statistically significant. In the future we would like to increase peer-peer interactions among the mentees to further develop an undergraduate community who are together passionate about attending graduate school.

Future Directions

The GradTrack structure can be implemented at peer institutions in its current format, or it has the potential to be translated to impact other populations of students. By developing new questions and meeting themes, this mentoring structure could help middle and high school students transition into undergraduate programs. A similar mentoring structure has also been developed to prepare engineering graduate students and postdocs for faculty careers [21]. We welcome any questions and dialogue regarding how this mentoring structure might fit the needs of your community.

In the future our goals are to continue to run a strong GradTrack program, potentially partnering with other institutions, and assessing a larger population of GradTrack participants. In addition to the improvements discussed above, we hope to focus intentionally on the belonging and well-being of current graduate students. We have shown significant progress in professional development efforts focusing on current graduate students and look forward to developing additional tools and structures to increase GradTrack mentors' sense of belonging in graduate school.

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