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Organizational Transformation for Graduate Education: Intentionally Engaging Graduate Students as Partners in Equity Work

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Keywords: graduate education, organizational change, equity work, students as partners

Abstract

Greater attention has recently been put towards improving the experiences of people from marginalized groups pursuing graduate degrees in engineering. In response to a call from the National Science Foundation to establish a center for equity in engineering, a collective, named PROTEGE, focused on organizational change at the graduate level is being established. One of the guiding principles for PROTEGE is to empower graduate students. This principle is motivated by community engagement, where by involving community members in the decision-making and outcome-production process, they can feel more invested in the results of the work and feel a sense of ownership in the outcomes of the initiatives. However, PROTEGE recognizes the tension between not wanting to overburden marginalized students and needing to have their involvement according to the principles of community engagement. Advancing equity work regularly comes at the expense of graduate students themselves, especially those that come from marginalized communities. Equity work and the emotional burdens produced by doing said work often go unnoticed and uncompensated within academia. The purpose of this paper is to present the initial plans for exploring how to shift more power to graduate students through community engagement so that graduate students will have a voice within PROTEGE.

Introduction

As part of a broader effort to diversify engineering education, greater attention has been put towards improving the experiences of people from marginalized groups pursuing graduate degrees in engineering [1]. While students from historically marginalized groups remain underrepresented in engineering graduate programs, there have been increases in enrollment of historically marginalized groups, in particular women and those from racially minoritized groups (i.e., Hispanic/Latinx, American Indian/Alaska Native, Black/African American, and Native Hawaiian/Other Pacific Islander) [2], [3]. Despite these increased enrollments, students from these groups are often isolated [4], tokenized [5], and experience hostile environments [4], [6], which can negatively affect students' retention, degree completion, time to degree, and success. Thus, there has been a push towards equity work, or creating policies and practices that are designed to support marginalized students.

The National Academies of Sciences, Engineering and Medicine recommends that graduate STEM education should be a diverse, equitable, and inclusive environment for all students,

regardless of background [1]. While it is recommended that this work come from faculty and administrators involved in graduate education, advancing equity work regularly comes at the expense of graduate students - especially those that come from marginalized communities and are dedicated to this type of advocacy [6]–[8]. ***This particular phenomenon is important because students from marginalized communities are oftentimes the intended beneficiaries of equity work, but also feel the urgency to do this work themselves to improve their own experiences and the experiences of those who may come into graduate education.*** Additionally, equity work and the emotional burdens produced by doing said work often go unnoticed and uncompensated within academia [8].

In response to a call from the National Science Foundation (NSF) to establish centers for equity in engineering, Virginia Tech, a research-intensive, predominately white institution, is establishing PROTEGE, a collective focused on organizational change at the graduate level. The PROTEGE Collective includes College of Engineering leadership, education researchers, engineering faculty and graduate students. One of the guiding principles for PROTEGE is to empower graduate students, those who are beneficiaries of the change PROTEGE strives to create. This principle was adopted to ensure that students were not left out of the decision making process and it was motivated by prior work related to community engagement, where by involving community members in the decision-making and outcome-production process, they can feel more invested in the results of the work and feel a sense of ownership in the outcomes of the initiatives. However, we recognize tension between not wanting to overburden marginalized students and needing to have their involvement according to the principles of community engagement. Therefore, there is a need to identify an effective and sustainable way to ensure graduate student involvement in PROTEGE.

Purpose

The purpose of this paper is to present the first phase of an initiative to shift more power to graduate students through community engagement, ensuring that graduate students will have a voice within PROTEGE. The phases of the project include: 1) Gaining graduate student perspective for structuring graduate student engagement in PROTEGE, and 2) Developing a plan for involving graduate student perspectives in PROTEGE moving forward. This work is being led by a graduate student working in the collective, who has experience with doing equity work and wanted to find a mechanism to give graduate students a voice.

With community engagement, by involving community members in the decision-making and outcome-production process, they can feel more invested in the results of the work and feel a sense of ownership in the outcomes of the initiatives. For the purposes of this study, the community this project is focusing on is defined as graduate students, who are intended to be the beneficiaries of this work. Community engagement is about ensuring that beneficiaries of change have a say in designing and implementing solutions. By shifting power to the hands of

community members, they can create the change that they want. Community engagement acknowledges that change cannot happen without community members involved in efforts [25]. Graduate students' experiences, knowledge, and skills are needed in PROTEGE's efforts.

By using the infrastructure within PROTEGE, we can begin to address the tensions between overburdening marginalized students and needing to have their involvement by creating a space where graduate students can continue making an impact on equity-related efforts while receiving the necessary resources and support. With this project, we can ensure that all voices are heard and that graduate students are not being overlooked, overworked, and uncompensated for their time. As universities start to create their own centers for equity in graduate education, it becomes increasingly important to share our experience with incorporating graduate student voices into PROTEGE.

Literature Review

Minoritized graduate students challenges

Over the past 10 years, African Americans, Latinx people, Native Americans, Indigenous people and women have demonstrated steady growth in doctoral education in engineering, yet these populations have higher attrition rates when compared to non-historically marginalized peers [9]. Minoritized graduate students usually leave their program within the first two years or take longer to complete their degree [2], [9]. This is not surprising if we acknowledge engineering as a white male normative space, where hostile environments linked to systemic issues such as racism, heterosexism, ableism, sexism, classism, and other forms of oppression produce isolation, lack of sense of belonging, lack of representation, microaggression, racial stereotyping, feeling oppressed and invalidated [10]–[21]. Unquestionably, all of these challenges hinder progress toward degree completion and make the graduate education experience more challenging for minoritized students. Additionally, minoritized engineering graduate students encounter lack of representation at faculty and student levels, exacerbating unwelcoming feeling, and tokenism as part of diversity campaigns [13], [22].

Reason of engagement and experiences

Despite all the challenges mentioned above, minoritized students often embrace their agency to place issues in the forefront and engage in activities to help them and others navigate injustices and inequalities. Indeed, community values and a sense of responsibility to respond to social injustice give minoritized students the motivation to help others reduce inequities within their field and develop equity ethics—challenge social inequities through their vocation—and amplifying the voices to add to larger conversations about equity and inclusion [23], [24].

Minoritized students often challenge their program and institutional environment to engage in self-advocacy to confront inequities and harmed experiences conducted by others in their

institutions, including oppressive language/behaviors, biases, prejudices, racism, and racial trauma [16], [23]. Regrettably, when student agency and self-advocacy actions do not enact changes at the departmental cultural and climate level, student agency changes from external to internal, turning on student survival mode to protect their well-being and advance in their program [16]. Despite this reality, many students continue engaging in DEI work alone or collaboratively through university organizations, committees, and community-based or national organizations. Unfortunately, this work is usually constrained by the power dynamics bringing burden to the students, and comes with the expense of not being recognized, remunerated, and valued as part of the academic endeavor. Additionally, faculty frequently rely on students' DEI work and do not recognize that they are also responsible for advancing the departmental climate. Consequently, students take on the DEI work that is supposed to be advanced by other actors in their department. These decisions come at the students' expense, especially for those who are minoritized; they are emotionally taxed, unpaid, and overworked [8].

Theoretical Framework

Linder's Power Conscious Framework

Linder's power conscious framework was used to guide this work [27], [28]. There are three underlying assumptions of using a power conscious framework:

1. Power is present in every interaction between people and between people and systems
2. Power and social identities are inextricably linked
3. Identity is socially constructed

These assumptions lead to the pillars that uphold the framework. These pillars provide an "organized way for scholars and activists to interrogate or analyze an idea, phenomenon, policy, or practice to improve them for future use" [28, p. 25].

This framework was created to help educators consider the role of power in addressing issues of oppression in institutional contexts, specifically in interactions, policies, and practices [28]. When doing equity work, it is important to center the experiences of historically marginalized communities and bring attention to the ways in which power is contributing to maintaining oppression. With this framework, the pillars can push educators to address not only the symptoms of the problem but also the root of the oppression. As shown in Table 1, these pillars were used to create questions in the survey administered in Phase 1.

Pillar 1	Pillar 2	Pillar 3	Pillar 4	Pillar 5	Pillar 6
Engagement in critical consciousness and self-awareness	Considering history and context	Changing behaviors based on reflection and awareness	Naming and calling attention to dominant group members' investment in	Naming and interrogating the role of power in individual interactions,	Working in solidarity to address oppression

			and benefit from systems of domination	policy development, and practice	

Table 1: The six pillars of Linder's power conscious framework [27], [28]

Asset Based Community Development/Community Engagement

In response to the complexity of minoritized graduate student challenges, their reason to engage in DEI efforts, and the experiences they encounter, we decided to approach student involvement using asset based community development and amplify their voices through community engagement.

It is important to recognize that the people who we want to help have assets that are often overlooked. Asset-Based Community Development (ABCD) is based upon the premise that instead of defining communities by what they lack and trying to fix their deficits, you define them by the assets they hold and engage with them [25]. To effectively use this framing, we will need to continuously involve community members throughout the process if we would like to support long-term change. Consequently, by involving community members in the decision-making and outcome-production process, they can feel more invested in the results of the work and feel a sense of ownership in the outcomes of the initiatives. In the long-term, it can create actual change within members of the community and can inspire others to strive for change [26].

Positionality

I, the first author, am a fifth-year PhD candidate in Engineering Education. My desire to pursue a PhD in Engineering Education comes from my experiences as a Black woman in engineering. Having majored in biomedical engineering for my undergraduate degree, I initially embarked on this academic path with a desire to create biomedical solutions that can impact Black people's lives. However, I was constantly frustrated by the lack of representation in the field and the negative experiences faced by not only my Black peers, but myself included. This led me to pivot to pursuing Engineering Education for my PhD, in hopes that it would be a better experience and I could make a change in the field.

Immediately coming into graduate school, I soon realized that graduate engineering education can be incredibly isolating as a Black woman and full of multifaceted challenges, which can be a barrier for students who want to make changes in higher education. In my first year, I was involved in writing a white paper that led to the restructuring of my department's Equity and Inclusion committee, and served as a graduate representative for the subsequent year. After serving on the Equity and Inclusion committee, I became involved in other roles that allowed me to do equity work such as recruiting and mentoring students who are historically marginalized in

graduate engineering education. When I found out about the grant to establish a center for equity in graduate education, I immediately knew I wanted to be involved, hoping that I could make the difference I always wanted to make.

Being on this grant, I strongly felt the need to involve other graduate students. After reflecting on my own experiences doing equity work, I knew that there needed to be a way to give graduate students a voice but not overwork them and compensate them for their time. During graduate school, I oftentimes felt like if I desired a change, I needed to make it myself. My positionality has enabled me to not only empathize with the graduate students who have done equity work, but also advocate for graduate student representation in PROTEGE. I truly believe that graduate students need to have a voice, but in a sustainable way. Thus, it is my hope that this project could shed light on what PROTEGE needs to do to accomplish this goal.

Methodology

This project was split into two phases, as shown in Figure 1. During Phase 1 (asynchronous), students were nominated by community members in the university community to answer a questionnaire via QuestionPro on their engagement in equity work and their perceptions on how PROTEGE should engage graduate students via a graduate student advisory board. Phase 2 (synchronous) involves meetings that occur during the academic year. For the purpose of this paper, Phase 1 will be the focus.

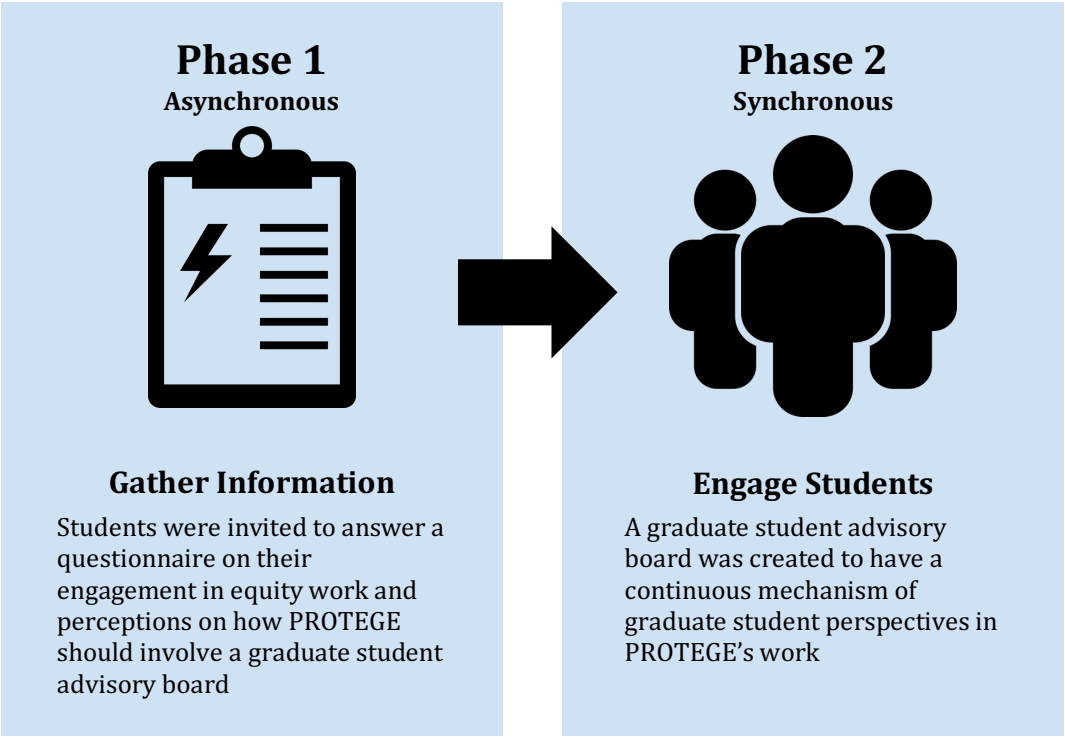

Figure 1: Diagram picturing phases of project

Sampling and Inviting Students

Recommendations for survey respondents were gathered from members of the project team, graduate coordinators and directors, cultural community centers, and organizations across Virginia Tech. On July 10th, 2023, we invited graduate students to complete a 20-minute questionnaire about their experiences with doing equity work at Virginia Tech. Students had to fit the following eligibility criteria to complete the survey: 1) completed at least one full-year at the university and plan to be enrolled the upcoming academic year, 2) performed equity-work within the graduate school, college of engineering, and/or department, 3) willingness to answer questions about their experience with said equity-work open and honestly, and 4) does not mind their perspective being shared in an aggregate with college leadership. The reasoning for choosing this criteria was to talk to students who may be interested in Phase 2 of the project, which is the synchronous advisory board for the 2023-2024 academic year. The survey closed on July 31st, 2023.

Thirty-nine people were invited to take the survey via Google Forms. Twenty-one (53.8%) people completed the survey, with one person electing to participate in an interview in lieu of the survey. Students were compensated for their participation with a $50 Amazon gift card.

Data Collection and Analysis

The survey was broken down into three topic areas: 1) demographics of the students, 2) their engagement in equity work, and 3) their perceptions of how PROTEGE should involve graduate students in Phase 2 of the project. For the purpose of this project, equity work is defined as "reconfiguring structures, cultures, and systems to empower marginalized groups and close disparities" [27, p. 2]. This definition was provided in the survey. Table 2 includes all of the survey items along with the response type and answers for each item.

Linder's power conscious framework was used to guide the questions in the questionnaire [28], [29]. For this phase, Pillars 2, considering history and context, and 6, working in solidarity to address oppression, were primarily used. Pillar 2 was utilized to acknowledge the history of graduate students' labor, especially from those who are doing equity work and are from historically marginalized communities. Questions were phrased to account of how oppression is inherently ingrained in graduate education and is contributing to issues with graduate student labor. Pillar 6 gave the guidance for PROTEGE to work in solidarity with those who are marginalized, in this case graduate students deciding who gets to do this work, instead of the team members of PROTEGE. To account for this, questions in the questionnaire explicitly asked students what they wanted from PROTEGE and what they needed help with to continue to do equity work.

Table 2: Questionnaire with survey item, response type in italics, and sample responses

Survey item	**Response**
Demographic Questions	
Please indicate your first semester of enrollment as a graduate student in the College of Engineering at Virginia Tech (i.e., Fall 2019, Spring 2022)	*Open response*
Please indicate your primary academic department	*Multiple choice* List of academic departments in the college of engineering
What degree(s) are you seeking? (check all that apply)	*Checkboxes* ● Master's (thesis) ● Master's (non-thesis) ● PhD
Which most closely describes your gender? (check all that apply)	*Checkboxes* ● Prefer not to answer ● Woman ● Man ● Transgender Woman/Trans Feminine ● Transgender Man/Trans Masculine ● Non-binary ● Prefer to self-describe (Open response)
Which most closely describes your race/ethnicity? (check all that apply):	*Checkboxes* ● Prefer not to answer ● Indigenous American, American Indian or Alaska Native ● Black, African American, or of African Descent ● Caribbean ● East Asian (e.g. Chinese, Korean, Japanese) ● Hispanic or Latino ● Middle Eastern or North African ● Native Hawaiian or Other Pacific Islander ● South Asian (e.g., Indian, Pakistani, Bangladeshi, Sri Lankan) ● Southeast Asian (e.g., Thai, Vietnamese, Burmese) ● White or Caucasian ● Prefer to self-describe (Open response)

Do you identify as a member of the LGBTQ+ community?	*Multiple choice* ● Prefer not to answer ● Yes ● No
Are you a veteran or otherwise supported by the military?	*Multiple choice* ● Prefer not to answer ● Yes ● No
Were you a first-generation undergraduate student (i.e., neither of your parents/guardians completed a 4-year college or university degree)?	*Multiple choice* ● Prefer not to answer ● Yes ● No
Are you a first-generation graduate student (i.e., neither of your parents/guardians completed a graduate degree)?	*Multiple choice* ● Prefer not to answer ● Yes ● No
Which of the following describes your citizenship status?	*Multiple choice* ● Prefer not to answer ● A U.S. Citizen ● A permanent resident of the U.S. ● A student with a temporary U.S. Visa ● Prefer to self-describe (Open response)
Are you registered as a student with a disability and/or do you identify as having a disability/chronic illness?	*Multiple choice* ● Prefer not to answer ● Yes ● No
Please indicate which of the following is a source of financial support for your educational and living expenses (check all that apply):	*Checkboxes* ● Fellowship/scholarship/grant ● Teaching assistantship ● Research assistantship ● Other assistantship ● Employer reimbursement/assistance ● Non-U.S. support ● Self funded (i.e., personal finances/savings) ● Student loans (i.e., money borrowed from a financial institution that must be repaid) ● Borrowed money from family/friend with NO expectation to repay ● Borrowed money from family/friend with

	expectation to repay ● I prefer not to answer ● Other (Open response)
Are there any other aspects of your identity that you feel influence your engagement with equity or DEI efforts?	*Open response*
Prior Experiences	
What roles (both formal and informal) have you held that involved you doing equity work? For example, [include examples of equity-related roles at Virginia Tech]	*Open response*
What have been your primary responsibilities within these roles?	*Open response*
Across your roles, how much time per week have you typically spent doing this work? Estimating is fine. We just want a general sense of how much time you have allocated to this work.	*Multiple choice* ● 1 hour ● 2 hours ● 3 hours ● 4 hours ● 5+ hours
Why have you decided to become involved in these roles? More specifically, how did you find out about them, and what has motivated you to do equity work?	*Open response*
What local resources (people, time, money, space, etc) have you received to support doing equity work, and where have these resources come from (i.e., COE, department)?	*Open response*
What are some notable challenges that you have faced doing equity work at Virginia Tech?	*Open response*
Reflecting back on the equity work you have previously engaged in, what do you wish you could have done differently?	*Open response*
What does your engagement in equity work at Virginia Tech look like moving	*Open response*

forward?	
In light of your own experiences and what you now know about Virginia Tech and graduate education, what advice would you give a prospective or current graduate student about doing equity work as a graduate student?	*Open response*
Student Involvement	
Graduate students who do equity work are oftentimes overlooked, overworked, and undercompensated. How might we involve graduate students without exploiting your labor? What forms of compensation or recognition are appropriate from your perspective?	*Open response*
What local resources - people, time, money, space, etc. - should the College make available to support these efforts?	*Open response*
In addition to ensuring students are appropriately compensated and/or recognized, what else should PROTEGE keep in mind when involving graduate students? Please feel free to share any concerns you may have with the current vision of this board.	*Open response*
If there anything else you would like to share? This is an open question providing more space for you to share and be heard. Feel free to input as much or as little as you would like here.	*Open response*
Are there any other engineering graduate students that are involved in equity-work that you would like to recommend to complete this questionnaire?	*Open response*

All responses from Google Forms were automatically imported into Google Sheets. Multiple choice and checkbox questions were analyzed for frequencies of responses. Due to the nature of the open-ended questions, some responses needed thematic analysis to analyze the data. For those survey questions, Braun and Clarke's six step guide for thematic analysis was used [30], as

shown in Figure 2. First, student responses for each survey item were read in its entirety. Codes were developed for each survey item and themes were created based on the codes. Each theme along with the data extracts were reviewed to decide if it would become a candidate theme. During this process, some themes were either deleted, combined with other themes, or split into multiple themes. Once the themes were refined, each theme was named and a definition was created for each theme. The final phase concluding this process was a write up of the results, which is shown in the Results & Implications section.

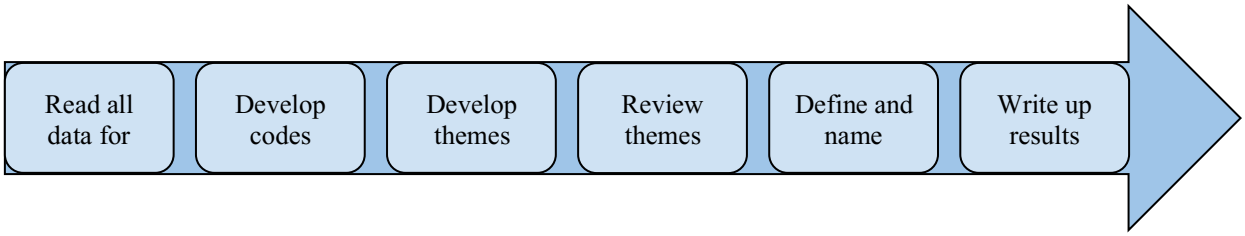

Figure 2: Braun and Clark's six step guide for thematic analysis, used to analyze open ended survey items

Demographics

Students participating in Phase 1 came from a broad spectrum of engineering disciplines, enrollment dates spanning five years, and a wide array of financial support. Most of the students who participated in Phase 1 were PhD students. Out of the 22 respondents, 16 students were PhD students (72.7%) with 4 being dual MS & PhD students (18.2%) and 2 being MS students (9.1%). First semester of enrollment ranged from Fall 2015 through Spring 2020, with a majority of students enrolling in Fall 2021 (33.3%). Students represented 11 out of the 17 disciplines in the institution's college of engineering (Figure 3). The most common disciplines were Engineering Education (31.8%), Biomedical Engineering (13.6%), Industrial & Systems Engineering (9.1%), Chemical Engineering (9.1%), and Aerospace & Ocean Engineering (9.1%). The most common sources of financial support were research assistantship (85.7%), fellowship/scholarship/grant (57.1%), and teaching assistantship (33.3%) (Figure 4). The six disciplines where there were no responses included: Biological Systems Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Nuclear Engineering, and Mining and Minerals Engineering. Graduate coordinators from each department were invited to provide names of students in their department who were doing equity work.

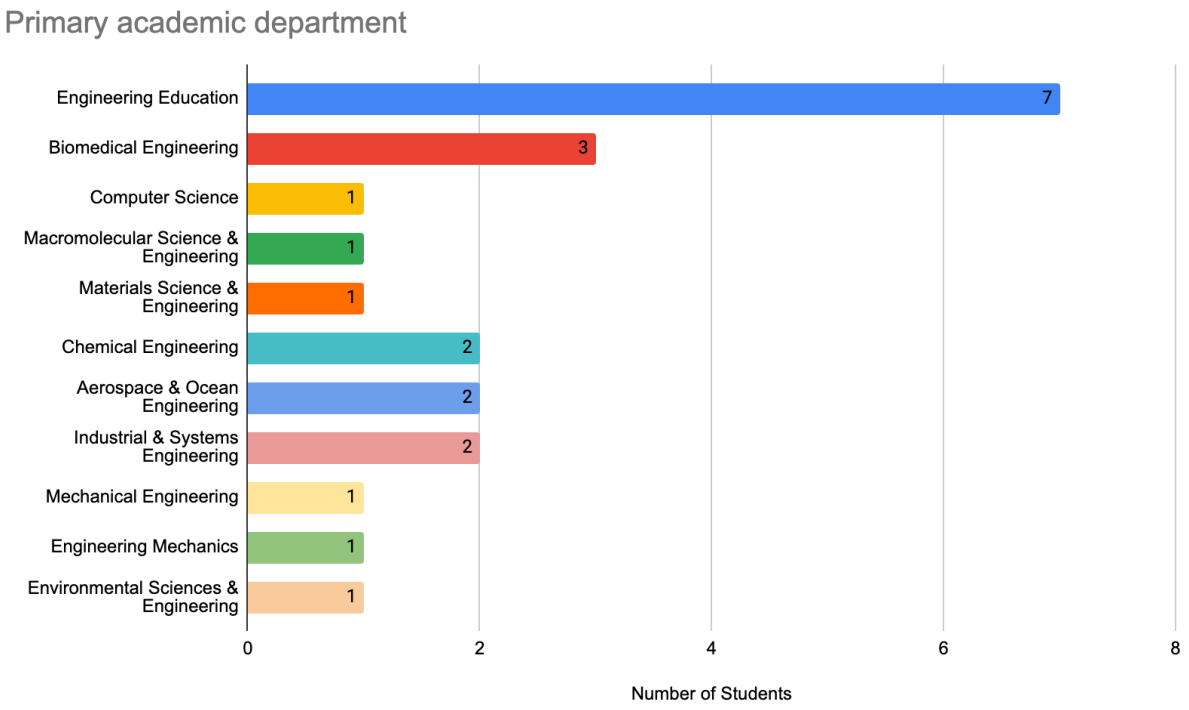

Figure 3: Count of students' primary academic department

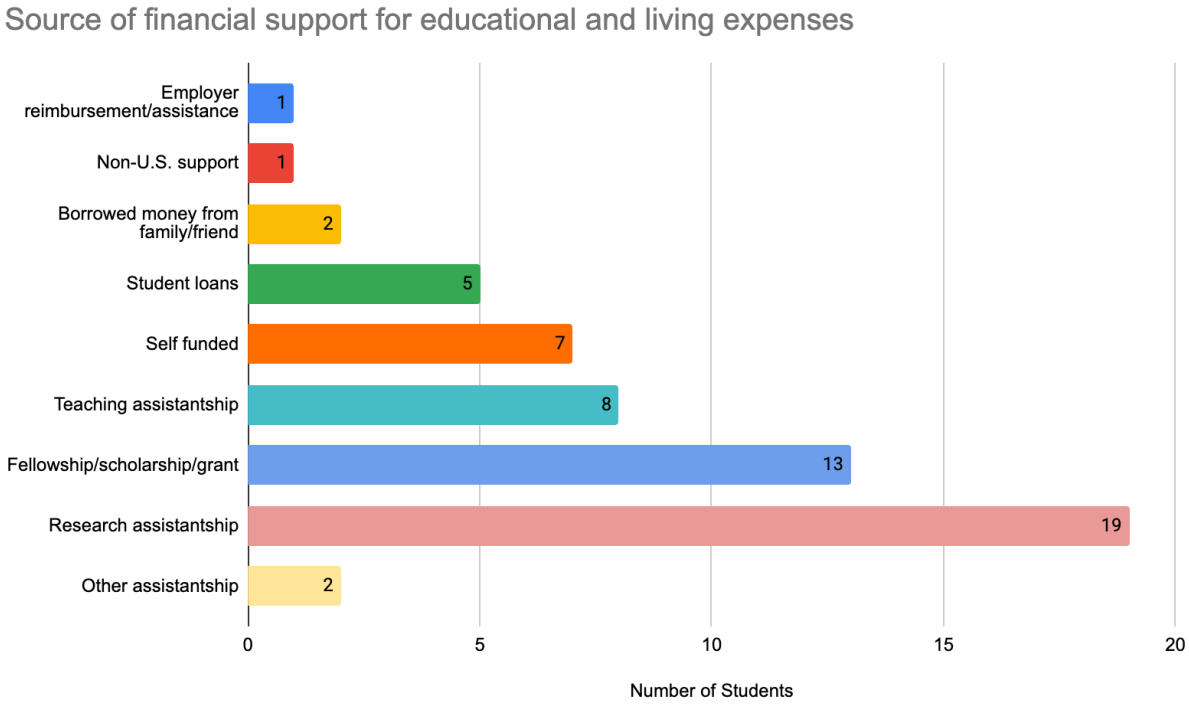

Figure 4: Count of students' source of financial support for educational and living expenses

The social identities of students were diverse in terms of gender identity, race/ethnicity, sexual orientation, first-generation status, and having a disability/chronic illness. Thirteen students (59.1%) identified as being a member of the LGBTQ+ community. Eight students considered themselves a first-generation undergraduate student (36.4%), and twelve students considered themselves a first-generation graduate student (54.5%). When looking at citizenship status, nineteen students (86.4%) were U.S. citizens, with the remainder having a temporary U.S. visa. Nine students (40.9 %) were registered as a student with a disability and/or identified with having a disability and/or a chronic illness. The most common race/ethnicity for students were White or Caucasian (36.4 %), Hispanic or Latino (31.8 %), and Black, African American or of African descent (27.3 %) (Figure 5). When looking at students' gender identity, nine students identified as women (40.9%), seven students identified as men (31.8%) and seven students identified as non-binary (31.8%) (Figure 6).

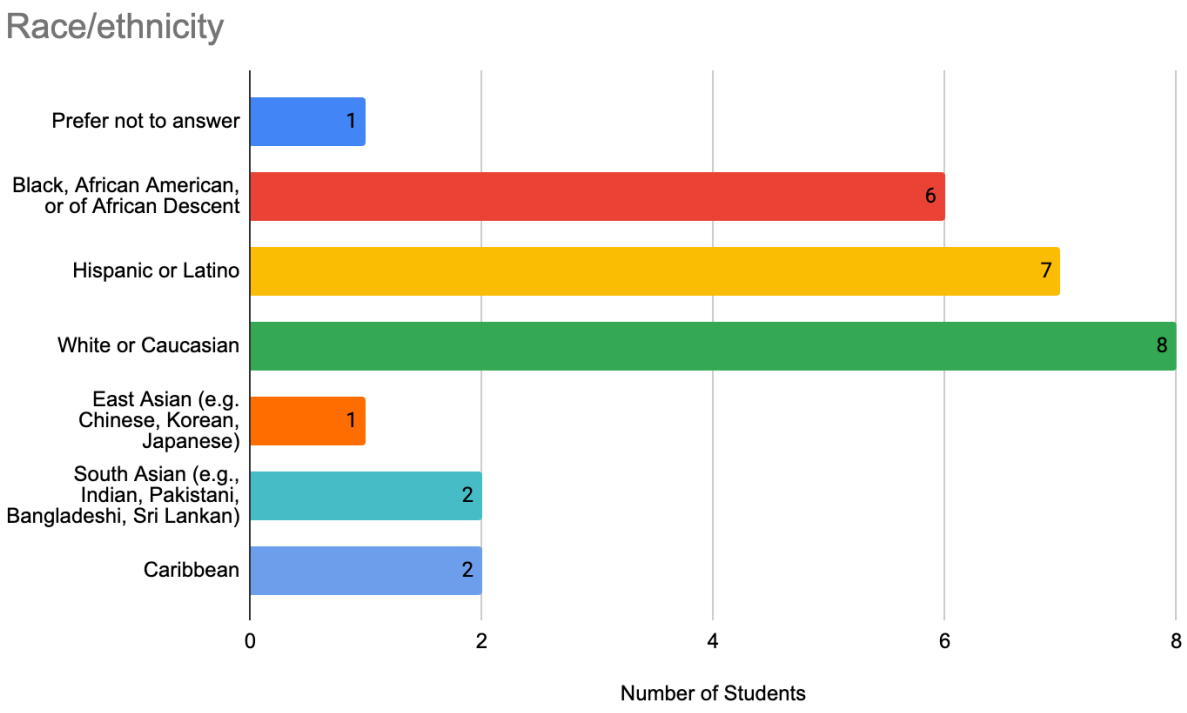

Figure 5: Count of students' race/ethnicity

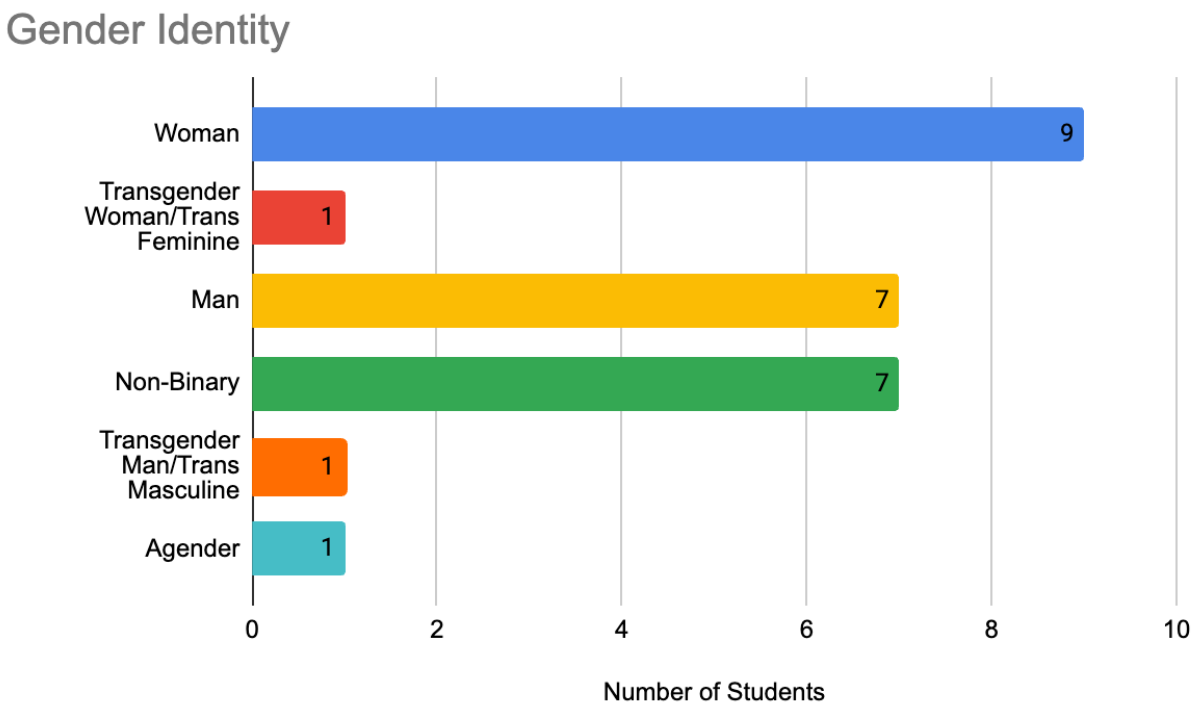

Figure 6: Count of students' gender identities

Results & Implications

Prior Experiences

Students had equity-related roles across all levels of the institution: their engineering department, the college of engineering, the university, and the graduate school. Some even did equity work through self-organizing and outside of the institution in community-based organizations and national engineering organizations. Departmental level roles included being a founding member or serving on the executive board of a discipline-based organization, serving as a graduate ambassador or recruiting for their department, and being a graduate student representative for a departmental committee. At the college level, students were involved in the minority engineering program's (MEP) undergraduate and graduate programs, served in the college's graduate programs in a service capacity, had equity-related graduate assistantships, and served on the executive board or were founders of a graduate student organization. At the university and graduate school level, students were actively involved in university level programming and initiatives, cultural and community centers, identity-based organizations, and advisory boards or working groups.

Within these roles, a wide range of tasks were assigned to them, consisting of organizing events, recruiting and mentoring students, building community, developing and sharing resources, advocating for change on behalf of graduate students, and various administrative duties such as

reserving rooms, managing finances, scheduling meetings and events, and advertising resources and events. Additionally, over a third of students spent more than five hours per week doing equity work across one or multiple roles. Overall, students devoted substantial time and effort to doing equity work across all levels of the university. These results exemplify the labor that is required of graduate students who want to improve the conditions of graduate engineering education.

Reasons & Resources for Equity Work

Students were involved in these roles for a variety of reasons, such as: it aligned with their interests and goals, negative experiences they have had inside and outside of academia, the desire to build or become a part of a community, and the desire to help and advocate for others. For those who did equity work as part of an organization or within their department, a wide range of local resources were provided such as entities within the university (i.e., minority engineering program, the graduate school, cultural and community centers), monetary funds, and people (i.e., dedicated staff, advisors, and faculty members). For students who worked through self-organizing, they often had no local resources. While students who do equity work are largely motivated by a desire to create a change and are provided resources, oftentimes students are not directly compensated. Thus, there is a need to provide more resources such as direct compensation, and provide resources for those who do self-organizing.

Challenges with Equity Work

With this equity work came a variety of challenges: lack of funds for efforts and people doing the equity work; lack of support from faculty, staff and administrators; institutional challenges at the university; issues with processes and time; and graduate students being overworked and tokenized. Reflecting on their past equity work, students primarily discussed wishing they could reach out to more resources and people who could have fostered more support, specifically faculty and administrators with more power to make change. Additionally, students wished they were more realistic and intentional about the work they did, in particular engaging in less equity work or being more involved earlier in graduate school.

Moving forward, students either decided they were going to continue doing equity work or were going to do less so they could focus on graduating and completing research. When asked to give advice to graduate students who want to do equity work, students responded by encouraging future students to advocate for themselves, find supportive people and communities, engaging in self care, and staying engaged within the broader graduate school community. This shows that there is a need to provide more support to students doing equity work, especially those without local resources.

Future Student Involvement

When asked how we could involve graduate students in PROTEGE without exploiting their labor, there were four main responses:

1) Providing monetary compensation in the form of an assistantship, wage position, award or stipend;
2) Preventing overwork;
3) Giving recognition & awareness to the work the board does; and
4) Providing professional development opportunities.

A variety of local resources were asked to be made available, such as dedicated staff for the board, a physical space for meetings, office space, collaborations with existing entities doing equity work, access to people in power who can enact change, and funding to support the board's efforts.

Lastly, several suggestions were given in what to consider for the board, in addition to the previous points listed. These include ensuring the board is representative of social backgrounds and majors in the college of engineering, protecting students against retaliation, being mindful of how students are compensated, spreading awareness of PROTEGE and the advisory board, taking graduate students seriously, and providing full transparency in the rules and expectations of the board. These suggestions should be taken into consideration for those who want to create advisory boards with graduate students, as it could help with getting students to participate and protect them, especially those from historically marginalized groups, from being overworked, overlooked, and undercompensated.

Conclusion

The purpose of this paper was to discuss the first phase for exploring how to shift more power to graduate students through community engagement in an NSF-funded center for equity at Virginia Tech. To understand this phenomenon, a questionnaire was conducted with graduate students doing equity work at the institution. These students came from a wide range of backgrounds and engineering disciplines. Their roles spanned all levels of the institution: their department, the college of engineering, the university, and the graduate school. With the variety of roles came a variety of responsibilities and local resource availability. With this equity work came a lot of challenges, and while some students decided to continue equity work, some stated that they needed to take a step back and focus on graduating. When asked about PROTEGE involving graduate students in our work, students stated: 1) providing monetary compensation, 2) preventing overwork, 3) giving recognition & awareness to the work the board does, and 4) providing professional development opportunities. These insights underscore the importance of addressing the tension between graduate student labor and community engagement in higher education.

From the results of the questionnaire, members of the PROTEGE team were able to create a plan moving forward on how to involve graduate student voices, which is Phase 2 of the project. For the 2023-2024 academic year, graduate students in the college of engineering at the institution were asked to serve on the first iteration of PROTEGE's graduate student advisory board. Students will serve as the "voice" for graduate students ensuring that PROTEGE projects reflect their perspective. Using the survey responses, guidelines were created to inform advisory board expectations and benefits, such as compensation, capped time commitment, recognition, and professional development. Future work includes Phase 2 of the project, specifically the creation of the long term plan for the PROTEGE graduate student advisory board.

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