

Reforming Graduate Student Policies and Resources Starts with Promoting the Ones you Already Have

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Executive Summary: The overall mental and physical well-being of STEM graduate students has been declining in recent years, and the COVID-19 pandemic has only exacerbated the situation. The institutional policies and resources meant to protect and support graduate students need to be updated to reflect the changing times and match the current needs of the students they are intended to serve. Through an exploratory study, we surveyed graduate students from U.S. higher education institutions on their perceptions of available resources and policies with the goal of identifying areas for improvement. The main findings from this study highlighted the critical need to increase the awareness and accessibility of policies and resources already provided to graduate students to promote perceived availability and, therefore, graduate student policy and resource use. We put forward two key recommendations to accomplish this task: first, it is crucial to begin centralizing, codifying, and annotating graduate student policies and resources to increase their accessibility amongst student populations. Second, we suggest active and passive marketing approaches to increase awareness of policies and resources throughout institutions. Accessibility and awareness of graduate student resources and policies need to be addressed to promote the success and safety of graduate students and, in doing so, ameliorate graduate student retention and cultivate diverse career futures in STEM.

I. The deteriorating welfare of graduate students

The ability of individuals to succeed professionally relies heavily on the quality of their work environment and the resources available to them when problems arise. This is especially the case for STEM graduate students, who often occupy a uniquely ambiguous position as not strictly employees nor strictly students. By depending on their university for simultaneous employment and education, STEM graduate students are often rendered ineligible for basic employee protections, such as those offered by the Fair Labor Standards Act (U.S. Department of Labor, Wage and Hour Division 2019). Therefore, all the policies in place to specifically support and protect graduate students,

for example, Title IX and student healthcare, can have an outsized impact on the student's success and influence their willingness to complete their degree and continue to a career in STEM fields.

Unfortunately, these graduate-specific policies and resources appear to be falling short, as recent surveys of graduate student populations have shown an alarming increase in concerns related to graduate student well-being and security; among the top issues are mental health (American Council on Education 2020; Evans et al. 2018; Langin 2020; Adrean et al. 2020; Gin et al. 2021), work-life balance (Fernandes 2021; Woolston 2020; Bilodeau et al. 2021; Walsh et al. 2021), career prospects (Hiler,

Fishman, and Nguyen 2021; Walsh et al. 2021), and harassment & discrimination (Inman et al. 2021; Chia-Chen et al. 2021; Chen 2021). The COVID-19 pandemic has further inflamed the situation and added layers of additional stressors to the already taxing job of a graduate student (Kee 2021; Adreak et al. 2020). Furthermore, the constraints of the pandemic have made many traditional educational practices, program requirements, and methods of resolving student concerns or problems unfeasible or impractical, which will accelerate the decline in STEM graduate student quality of life if left unaddressed (Varadarajan, Brown, and Chalkley 2021; Tori DeAngelis 2020; Wasil et al. 2021). First-generation, low-income, and historically disadvantaged groups are especially vulnerable to the previously indicated issues, and therefore addressing these topics could be one approach to help improve retention and career outcomes for these individuals pursuing advanced STEM degrees (Ogilvie et al. 2020).

In light of these facts, the institutional policies that govern graduate students merit a review and revision to confront the escalating issues facing graduate students. To aid in this effort, we will propose several student-informed changes that graduate program administrators and deans can apply to improve universal problems with graduate student policies and resources.

II. Overcoming perceived graduate student resource/policy scarcity through promoting awareness and accessibility

Throughout our time in graduate education, the authors have separately observed that institutional resources and policies were frequently present and available to graduate students but were heavily under-utilized or unknown. To investigate why this was occurring, we formed a working group through the National Science Policy Network (NSPN) focused on assessing the perceived availability of graduate student resources and policies. We developed and administered an exploratory survey focusing on twenty common policies and resources at institutions of higher education with the intent of determining potential areas for improvement. ninety-nine respondents from across the United States completed the survey, recording whether they believed they had access to any of three major categories of policies or resources: skill-building

resources (career centers, mentoring resources, etc.); wellness resources (health insurance, mental health resources, etc.); and emergency resources (harassment, safety, and advisor change policies). The option to submit respondent demographic data was also provided. Trends in the perception of the surveyed policies and resources were compiled and analyzed. A high percentage of respondents ($\geq 90\%$ of respondents) provided demographic data allowing for differential impact analysis. Furthermore, a subsample of responses was cross-checked with the associated institution's handbooks and websites to determine the accuracy of the graduate student's perceptions of their policies. More methodological details from the full report can be accessed here: <https://scipolnetwork.org/page/graduate-student-policies>. While the report provides a comprehensive overview of our findings from the survey, we felt it was necessary to highlight a key finding and provide some concise recommendations.

Our exploratory study revealed that in many cases, graduate students thought that a policy or resource was absent from their institution simply because they had not heard of it or they did not understand it. Frequently, when we cross-checked respondent assertions that they did not have a common resource or policy, we indeed found an associated resource/policy. For example, all institutions analyzed in our policy perception validation section possessed a career center or services available to graduate students. However, 14% of our respondents indicated that they did not have such a resource. Another example of this phenomenon was workplace safety and incident reporting policies, where a surprising 24% of respondents believed these policies did not exist or apply to them. This is highly unlikely due to the many state and federal regulations regarding this topic (U.S. Department of Labor, Wage and Hour Division 2021.). Our cross-check also revealed that all institutions investigated possessed these policies and they applied to graduate students.

Additionally, respondents had universally lower confidence in their assertions that a certain policy or resource was absent compared to if a policy/resource was thought to be present. Using the same example of resource and policy as above, our survey found that respondents who believed they

had access to a career center were 92% sure that this resource was available. On the other hand, respondents that claimed they did not have access to a career center were only 61% confident that this resource was absent. A similar trend holds for the workplace safety policies, where the respondents who suspected they had access to this policy were 75% certain. In contrast, those who believed they did not have these policies were only 31% confident. This implies that a significant problem facing graduate student policies and resources is an issue of awareness. This was further reinforced by several respondents who commented that completing the survey made them aware of policies/resources that they had not known were present. For example, one respondent commented, "I had no idea this even existed," after indicating they had access to an ombudsman. Therefore, one of the major recommendations from our study is: **Increase the awareness and accessibility of policies and resources already provided to graduate students to promote their perceived availability, and consequent use.**

To remedy this issue of awareness and accessibility, we propose the following direct approaches institutions and graduate student programs can easily undertake:

i. Centralize, codify, and annotate graduate student policies and resources to increase accessibility.

A straightforward way to achieve the above changes would be to create a centralized repository within each institution where all graduate student-applicable policies and available resources could be reviewed in an organized fashion. Information on available policies/resources is frequently scattered across various institutional sources for rules and regulations, which makes finding the necessary information difficult. Many institutions have already started employing policy/resource repositories, but unfortunately, these repositories may still be underutilized (University of North Carolina at Greensboro 2022). Therefore, besides building a repository, the current policies and resource listings should be updated to include summaries of what each resource/policy entails and addresses. For legal reasons, policies are often complex and jargon-heavy. For example, discrimination and harassment policies are usually quite extensive. While this ensures robust

protection, it can lead to difficulty understanding what is covered by those unfamiliar with the associated areas. The proposed summaries would help highlight the applicability and increase base knowledge in regard to the available resources and policies. Included in these summaries should also be a rough outline of steps needed to enact the policy, with situational examples to give the students a frame of reference for applicability. Experts within each institution familiar with the nuances of a policy or resource should assist with the creation of these summaries to ensure the delivery of pertinent and accurate information.

One of the possible reasons resource and policy repositories are not frequently employed or utilized is the great variety of graduate programs, each with unique program requirements and regulating entities, within a single institution. This issue can be easily rectified by creating custom versions of the repositories for the associated program or department. While this may seem a daunting task for administrators and program coordinators, using a university-specific repository template to start and an interconnected update system for maintenance can significantly expedite the construction process while reducing future labor involved with individual inquiries and resolving policy/resource addressable situations. Overall, implementing a straightforward, consolidated, program-specific listing of all available resources and policies will significantly boost their accessibility to graduate students and promote an increase in use.

ii. Improve the methods of promulgation to increase awareness of policies and resources.

Simply having resources and policies listed somewhere on a website or in a handbook is not enough to ensure adequate understanding or awareness by most graduate students. In addition to being well-crafted, these resources and policies must be continually and actively introduced to the graduate students they protect in various effective ways to increase uptake. For example, career centers set up booths and presentations at university events with supplemental flyers and email campaigns throughout the year announcing their programming. This approach can easily be translated to the rest of the policies and resources through both passive (e.g., flyers) and active (e.g., discussions) marketing. While the combination of these marketing techniques are

effective at reaching most graduate students, there are still some students (14% for career centers from our study) who these methods do not reach. Therefore, we believe further marketing efforts are required for all policies and resources. We recommend an increase in the development and utilization of active marketing techniques with

strategic supplemental passive approaches. To assist, we've compiled a succinct but not all-encompassing list of active and passive ways that policies and resources can be kept in the student's periphery until such a time comes when they may need to access them (Table 1).

Active	Passive
Directly involving students in the promoting and revamping of policies	Posting flyers around labs, classrooms, and areas heavily frequented by graduate students
Town halls with engaging question/answer periods	Distributing portable resource/policy marketing at graduate school and departmental events (Bookmarks, writing implements, reference tables, etc.)
A yearly departmental seminar that educates new and returning graduate students on the updated resources and policies	Handouts outlining the main points of the handbook
Professors briefly discussing policies with their lab and providing passive resource/policy materials alongside their lab safety documents	Banner ads on graduate school and/or departmental website
Coordinating seminars with graduate student government to inform students of policy and resource updates	Social media campaigns to highlight updated resources or policies

Table 1: Active and passive marketing options for advertising graduate student resources and policies at an institution.

While all the above are great steps to improve policy/resource awareness, we wish to highlight one of the most important active marketing suggestions: engaging graduate students in promoting and revamping policies. Formally empowering members of the graduate student community to be involved in developing the policies that protect them will make sure that the policies are more reflective of the realities of today's graduate students. Additionally, it will also create students who are well versed in the intent and implementation of policies who can serve as resources to their peers. Students are often less intimidating than faculty/administrators and usually have a more direct understanding of the practical

application and effectiveness of most policies and resources. Members of the graduate student community versed in policies and resources are often already present, such as more senior students and those involved with graduate student government. Identifying these students and making official advisory positions at the program and/or departmental levels would increase exposure and ensure accurate advice and information for the students and the faculty if the need to revise or create a policy should arise.

III. Addressing graduate student policy/resource issues to ameliorate STEM education and workforce development

Graduate students face many challenges during their degrees. The institutional policies and resources meant to protect and support them should not be one of these hurdles. Our recent survey data indicates that the lack of awareness and accessibility of these policies and resources is a critical issue currently hindering graduate student success and retention. When individuals do not feel protected in situations of crisis or are confused about what career options are available to them, it can be difficult to feel confident in their program and professional outlook. Therefore, directly addressing the accessibility of policies and resources by centralizing, codifying, and annotating them should be immediately performed by graduate student institutions. Additionally, the methods to publicize

these policies and resources to increase graduate student awareness should be seriously considered, and a diverse array of tactics should be employed.

University administrations can significantly benefit their graduate students by employing these straightforward changes recommended herein. Additional observations and recommendations covering improvements to protective policies, mental health services, and more from our pilot study can be viewed [here](#). We recommend interested parties view the full report for further guidance. In conclusion, the health and well-being of STEM graduate students are foundational to continuing the research and advanced professional development enterprise. By addressing the cracks where graduate students' needs slip through, we hope to empower not only administrators, but those individuals affected to take action and improve the success of their graduate student populations.

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