Adjusting Expectations: The Impact of 2020 Campus Closures on Advisors’ Approaches to Graduate Student Mentorship

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The spring 2020 campus closures due to the COVID-19 pandemic may have posed particular challenges related to the mentorship of science graduate students. In this study, science faculty mentors from one U.S. university report on potential delays to degree completion and their expectations of their mentees during this time. Nearly half of the faculty advisors surveyed expected their graduate student mentees to experience delayed time to graduation. Respondents also described making an effort to support their mentees through providing encouragement and identifying research-related goals students could complete remotely. One-quarter of respondents stated that they were not altering their expectations for their mentees. The respondents who did report having altered expectations varied between altering their immediate expectations and changing their overall expectations for degree completion. These findings relate not only to the immediate impact on graduate mentees but also to the long-term impacts of COVID-19 on graduate education in the United States.

INTRODUCTION

In the spring semester of 2020, colleges and universities across the United States suddenly closed access to their campuses due to the COVID-19 pandemic (1–3). During this time, university stakeholders were dealing with the impacts of the pandemic as well as the transition to emergency remote teaching (ERT) (2, 4). Campus closures during the COVID-19 pandemic have affected STEM research faculty and students in particular, as many campuses not only switched to online teaching but also ceased all non-essential research operations. Discussions related to campus closures focus heavily on the impacts on faculty and undergraduate students in both popular press and the initial wave of publications related to higher education during the pandemic (5–8). These range from work-related stressors, such as Internet challenges and lack of preparation for ERT (4, 9), to psychological stressors, including how quarantining and social isolation can have serious effects on mental health, such as insomnia, posttraumatic stress disorder, and low mood (8, 10, 11). Previous work on the impact of tragedies and disasters on college students has shown that there are emotional and cognitive repercussions even on those who are not directly affected by the traumatic event in question (12, 13).

While there has been some reporting on how the COVID-19 pandemic has affected medical students (14), there is a lack of research focused on the pandemic-related needs of graduate students, who are key contributors to the university community through their research, teaching, mentorship, and service. For example, graduate students are generally responsible for teaching up to 90% of laboratory courses and 25% to 50% of undergraduate courses (15–17). Graduate students may have been affected by campus closures because they had to pivot to ERT, were limited by laboratory closures, and began receiving remote mentorship from faculty who also experienced these stressors. Science graduate students’ experience in graduate school is heavily influenced by their faculty advisors, who provide physical resources, such as laboratory equipment and funding, and also serve as a primary source of mentorship and support (18–20). Several publications have suggested that having clear and aligned expectations in a mentor-mentee relationship is important for that relationship’s success (21, 22). Combining the importance of expectations with the upheaval caused by campus closures, we hypothesized that the expectations mentors have of their mentees were altered. Thus, understanding how faculty advisors chose to alter their mentorship and expectations of their graduate mentees can help to describe how graduate students have been affected by this pandemic.

Here, we describe how campus closures due to COVID-19 impacted graduate student mentorship by surveying faculty advisors at one doctorate-granting university in the United States about the effect campus closures had on their mentorship and their mentees. We had the following research questions:
1. How do graduate advisors perceive that campus closures will impact their mentees’ time to graduation?
2. How were advisors supporting their graduate student mentees during campus closures?
3. How, if at all, did advisors modify their expectations of their graduate student mentees during campus closures?

In general, research on the effects of these campus closures and the transition to remote mentoring could provide insights into how universities could best react to future closures due to infectious disease outbreaks or the increasing number of extreme weather events caused by climate change (23, 24). Furthermore, all members of a university community can experience personal tragedies or health-related absences at any time; improving our understanding of how to best support our community members could aid in instances of personal trauma or absence.

METHODS

Context and participant recruitment

This study took place during the spring semester of 2020 at a research-intensive institution in the midwestern United States during the COVID-19 pandemic. We focused on a single institution, because we had in-depth knowledge about the COVID-19 response at this institution. A survey was sent to faculty in three colleges at the institution, representing various subfields within science and engineering, at the end of the spring 2020 semester. Disciplines represented within these colleges include, but are not limited to, biological sciences, engineering, food science, agricultural science, and natural resources. Faculty were given 2 weeks to complete the survey and were sent one reminder after 1 week. The survey was distributed via email using Qualtrics, and the first 100 respondents received a $10 gift card as an incentive. This study was exempt from IRB review at The University of Minnesota under protocol STUDY00002261.

Data collection and analysis

The data discussed here are survey responses of 92 faculty who were mentoring at least one graduate student, including both masters and doctoral students, at the time of the survey. While the survey covered many topics related to the spring 2020 campus closures due to the COVID-19 pandemic, this study represents a subset of those questions asked specifically to faculty advisors of graduate students. A combination of open- and closed-ended questions focused on faculty advisors’ perceptions of their graduate mentees’ progress, how the advisors were supporting their mentees, and the impact of campus closures on advisors’ expectations for their mentees (see Appendix 1 in the supplemental material).

Once we received the responses, we began our analysis by first becoming familiar with the data by reading all responses to the open-ended questions. We then coded the responses using inductive and thematic coding (25–27). While reading the responses, we independently identified an initial set of themes that we were noticing in the data. Following this familiarization, we came together to discuss themes and develop an initial set of codes (Appendix 2). We coded the responses to consensus: discussing codes and definitions, modifying them, and returning to responses that were already coded to correct the coding based on the new codes. This iterative process of consensus coding was done to ensure that the codes accurately represented the data and was possible because of the small size of the data set (28, 29). The quotes featured here are lightly edited for grammar and clarity.

RESULTS

What was the perceived impact on graduate students’ progress to degree?

To ascertain the impact on graduate students’ degree progress, we investigated who was working on campus and faculty advisors’ perceptions of their mentees’ degree progress. First, we asked advisors to report if they or any of their mentees were going onto campus and for what purpose (see Appendix 1 in the supplemental material). Out of the 91 survey respondents who answered both questions (i.e., if they were going to campus and if their mentees were going to campus), 25 reported that someone in their laboratory was conducting on-campus work during the period of restricted campus access (Table 1). Of those 25 respondents, 11 indicated that they were not going to conduct work on campus but had mentees that were. Those individuals who were working on campus were primarily tasked with the care of animals, plants, and microbes or
maintenance of equipment such as laboratory freezers. Only a single student and a single faculty member were reported as going to campus to conduct experiments not related to COVID-19, but, notably, these two individuals were not from the same laboratory group.

Second, many respondents (~48%) reported that their mentees’ time to graduation would be delayed. While few respondents described the length of delay or which of their mentees would be delayed, those who did provide this kind of information described delays varying from a few weeks to a year. One respondent stated, “One senior student just needed that proverbial ‘last experiment’ to finish her thesis. She will be 1 to 2 months delayed now.” Another respondent described a much longer delay, saying, “She will be delayed by at least a semester (possibly a year) due to loss of a field season.” Furthermore, while many respondents described delays that affected students nearing graduation, one respondent did mention a possible impact on new students, saying, “[The] first-year grad students have no preliminary data and just have to wait.”

Not being able to complete experiments in the laboratory was only one of several reasons advisors described as causing their mentees’ graduation dates to be delayed. Another factor was not being able to conduct fieldwork due to travel restrictions, with one advisor saying, “My students who do fieldwork have already been affected enormously by the travel ban. One student who had begun his fieldwork was required to return home. Two other students have not yet begun their fieldwork, and it is not clear when they will be able to do so.” Other reasons for delays included mentees’ mental health, decreased communication between mentors and mentees, and a larger portion of time spent on teaching. Respondents indicated that the move to online learning required additional time commitment from a few graduate mentees as well as faculty. Referring to the impact of teaching on their graduate students, one faculty member wrote, “One of my students is having to spend more time teaching, and this has impacted his ability to finish his dissertation.” Another respondent reported the impact of teaching on their own availability to support their mentees, saying, “My availability has been reduced by the enormously higher workload of providing a degraded online ‘classroom’ teaching job for undergrads.”

How were mentors trying to support their mentees?

We investigated how faculty advisors saw themselves supporting their graduate student mentees during campus closures. Respondents reported providing general support and contact, emotional support, and physical resources. Many respondents described being “supportive” in broad terms and staying in regular contact with their mentees via email and video conferencing. A few advisors also reported creating opportunities for the members of their research teams, including graduate mentees, to talk together in a more casual setting, such as a daily coffee break via video conference. Some respondents specifically said that they were trying to provide emotional support to their mentees in the form of providing mental health resources, “positive feedback,” and “encouragement.” Another way faculty provided emotional support was through being transparent with their mentees about their own struggles, such as one respondent who said, “[I’ve] sent them information about health resources, and also communicated with them about times I was struggling during the shutdown so as to show them it’s ok to be not on top form all the time.” Finally, respondents acknowledged that some of their mentees were facing greater than usual challenges on the job market and reported aiding them in their job search. However, the respondents were not specific as to how they were supporting their mentees who were looking for jobs. For example, one respondent reported providing “availability and support as my student looks for postdoctoral opportunities at a very challenging time.”

Some of the resources advisors reported providing to their mentees were specifically aimed at helping the mentees continue to work during the campus closures. Many advisors reported providing physical resources to their mentees to help them continue to work during the campus closures. These resources varied from purchasing new equipment or arranging for equipment such as computers or monitors to be sent to mentees’ homes so they could continue working from home. One respondent noticed a unique need from a mentee who was going into campus to perform laboratory-related tasks, “[I] offered my parking spot so they don’t need to take public transportation.” The final observed form of support was advising their mentees on how to continue being productive such as establishing and making progress toward goals while working from home and developing projects that could be done remotely. One respondent said they “tried to help [my mentees] establish goals they can meet while working from home. And we meet each week to see if they are closer to those goals.” This respondent saw themselves as supporting their mentees by helping them set and follow through with their goals.

How did faculty alter expectations for their mentees?

Faculty reported different ways in which they altered expectations for graduate mentees during campus closures. In some cases, changes to expectations focused on the immediate effects of campus closures including providing more time for tasks, a general decrease in expectations while working from home, and having mentees focus on tasks that are easy to do from home (e.g., writing, reading, and data analysis). One respondent described the tasks mentees could do from home this way: “Since research has stopped on the experimental front, these projects are on hold, and these students are doing literature review.” Notably, one-quarter of faculty reported having mentees who requested extensions or reduced tasks due to COVID-related difficulties, such as becoming ill, self-quarantining,
mental health, or not having access to necessary materials or equipment. Some faculty chose to help their mentees identify new projects that could replace existing plans or limit the work needed to complete their dissertation or thesis by actions such as allowing for incomplete data sets or reducing the number of replicates. The types of replacement projects proposed were usually computational in nature. One faculty member summarized many of the options saying, “[I am] trying to encourage all of them to shift some of their planned research to analysis of existing data sets, meta-analyses, projects they can do in their yards, etc.” Finally, one-quarter of the faculty explicitly reported not altering any expectations for students, with one respondent writing, “No. If the quality of the thesis work does not meet the minimal criteria, I will not put my signature on the thesis.”

DISCUSSION

The goal of this study was to explore the potential impacts that spring 2020 campus closures due to the COVID-19 pandemic had on science graduate students, specifically focusing on any potential delays to degree completion and the expectations of their faculty advisors. Nearly half of the advisors surveyed expected their graduate student mentees to experience delayed time to graduation due to campus closures and lack of access to necessary resources, such as field sites. Respondents also described how they were trying to support their mentees through providing encouragement and aiding students in identifying goals they could complete remotely in order to progress in their research. Finally, one-quarter of respondents stated that they were not altering their expectations for their mentees. Those respondents who did report having altered expectations varied between changing their immediate expectations and changing their overall expectations for what their mentees need to accomplish before completing their degrees. Below, we describe the potential implications of these findings for both current and future graduate students and what resources could be put in place to assist graduate students during times of crisis.

Time-to-graduation delay

Approximately half of the faculty respondents indicated that their mentees were likely to be delayed due to campus closures. However, that means about half of the respondents did not anticipate delays. It may be important for faculty advisors to continuously and consciously assess any potential delays for their students throughout the COVID-19 pandemic and any future crisis and discuss these concerns with their peers in order to be best prepared to support their students. Delays to graduation for graduate students may impact both current and future graduate students. For current students, the greatest concern on extending time to graduation is likely ensuring that they still receive their stipends, as many may require funding extensions (30). Funding availability is an even greater concern for those students who may not have other sources of income or financial security, increasing the odds of attrition. It is reasonable to assume that some students who cannot acquire extended funding may have to drop out of their programs, which will likely impact already vulnerable populations to a greater degree, hindering diversity and inclusion efforts in the academy (31). Furthermore, graduate programs across the United States suspended admissions for a variety of programs, although few suspensions were in science fields, in order to fulfill funding commitments to current students (32). However, graduate students take on a large portion of undergraduate teaching responsibilities, and a decrease in the number of students overall may have an impact on undergraduate education (15).

Faculty support of students

While many faculty advisors in this study described ways that they were trying to support their students, few mentioned support efforts specifically related to their mentees’ teaching responsibilities, and none described formal support mechanisms provided by the university or their departments that were specific to pandemic-related challenges. Many of the support efforts described, such as communicating clearly, helping mentees set realistic goals, and providing information about the university’s mental health services, were actions that faculty mentors should take at any time, not just during the pandemic. One study of chemistry and math graduate students suggests that the support that advisors provide their mentees impacts the mentees’ self-efficacy, which then has repercussions on the mentees’ career optimism (33). When combining delays to graduation with an international crisis such as COVID-19, the support from faculty mentors may have even more significant impacts on their mentees’ career optimism and perseverance in STEM.

Individual faculty members likely underwent their own campus closure-related stressors, and universities and departments could help mitigate faculty stress by providing programs to fortify mentoring responsibilities. Departments or institutions could organize faculty learning communities focused on mentoring in times of crisis or mentoring in general to provide advisors with knowledge of how to help their mentees during this time (34). These communities could facilitate discussion on how to best support graduate mentees in research and teaching, expectations for graduation, and resources available to both students and faculty. Additional support from the university could include encouraging students and advisors to designate a second advisor that students could turn to in cases of emergency or just when students need some extra support. Further support for graduate students could come from having staff from graduate programs check in regularly and provide social support outlets for students, such as affinity group meetings, online social time with peers, or support groups for mental health. Finally, career offices at universities could provide
programming to help graduate students navigate a particularly difficult job market to further ease the burden of a faculty advisor having to provide the whole support network for their mentees.

**No standard practices for altering expectations**

Faculty advisors reported altering expectations of graduate students to various degrees. Some described not altering expectations at all, which may cause problems for their students, such as further delays in time to graduation and increased stress. Reducing expectations for graduation requirements could also have negative effects on graduate students, such as impacting job prospects if students graduate with fewer publications or active projects than their peers. In either case, these results suggest that there is no one vision on how to adjust or maintain expectations of graduate students during times of crisis. While this lack of singular vision can cause problems, it may also indicate an opportunity for graduate programs to revisit their expectations for graduation. Departments have a checklist of degree requirements, but this may not be sufficient to ensure that all faculty have a shared vision of expectations for their graduate students, especially in times of crisis. Science faculty could develop a shared vision of these expectations as well as guidelines to follow in times of national, local, or personal crisis. The establishment of emergency guidelines could help students meet graduation requirements in a functional amount of time. Individual faculty could also work with their mentees on establishing and altering guidelines through the use of a mentor-mentee expectations document that could be revisited during times of crisis or after any event that may alter a student's trajectory (35). These documents could also help advisors reflect on their students' expectations of themselves and help advisors identify ways to support their students that work with the advisor's time limits.

**Conclusions**

Here, we report on the perceptions of faculty from a single, research-intensive university. Every institution had a different response to the COVID-19 pandemic, which can cause challenges for generalizing this work from a single university. However, we hypothesize that the challenges facing graduate students and their mentors at this one institution, such as not having access to laboratories or field sites, are not context specific and will also be present at other universities. Future work should monitor the developing impacts of crisis on graduate students and their relationship with their advisors, including the success of students on the job market, their time to graduation, and how to support faculty advisors in mentoring their students through a crisis. Understanding how pandemic-related complications have affected graduate students in 2020 can help identify pitfalls and best practices for future campus closures. The results, implications, and recommendations described here are not inherently specific to COVID-19 and may aid generally in preparing for future potential campus closures or other situations that may keep graduate students from campus.

**SUPPLEMENTAL MATERIAL**

Appendix 1: Survey questions
Appendix 2: Codebooks and examples

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**REFERENCES**