



IMPACTS OF THE COVID-19 PANDEMIC ON DOCTORAL STUDENTS' THESIS/DISSERTATION PROGRESS

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ABSTRACT

Aim/Purpose	The purpose of this study was to document the impacts of the COVID-19 pandemic for doctoral students who were proposing, conducting, or writing up their doctoral thesis, dissertation, or other culminating project.
Background	For doctoral students, the process of designing, implementing, and writing a culminating project is a key part of the learning experience. These projects typically require students to direct their own learning and to manage setbacks, obstacles, and challenges as they arise. During the COVID-19 pandemic, doctoral students around the globe had to undertake this key learning experience in the context of a global crisis.
Methodology	During August and September 2020, 235 doctoral students from around the world completed an online questionnaire consisting of demographic questions and three open-ended questions about their experience during the COVID-19 pandemic. Analysis involved several cycles of In Vivo Coding of the data, which yielded codes, categories, and eventually themes. At each stage, the researchers collaborated to generate the codes, and the categories and themes arose through several rounds of discussion.
Contribution	Our study adds to the small body of knowledge on doctoral students' experiences from around the world during the COVID-19 pandemic by identifying categories of experience through qualitative, open-ended survey questions. The

Accepting Editor Sonya C Thomas | Received: April 13, 2021 | Revised: June 23, 2021 |
Accepted: July 6, 2021.

Cite as: Donohue, W. J., Lee, A. S.-J., Simpson, S. Y., & Vacek, K. (2021). Impacts of the COVID-19 pandemic on doctoral students' thesis/dissertation progress. *International Journal of Doctoral Studies*, 16, 533-552.
<https://doi.org/10.28945/4818>

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	study highlights doctoral students' challenges and how these were either exacerbated or mitigated by pandemic-induced changes.
Findings	Our survey respondents described impacts on their culminating projects' progress in five major categories: research design, access to resources, workload, mental health, and finances.
Recommendations for Practitioners	The five categories of impacts emerging from our participants' responses may be useful for faculty and administrators of doctoral programs to consider in reviewing their programs' responses to the pandemic and making future plans for providing academic continuity in crisis situations as well as re-evaluating the priorities and structures of doctoral program to better support students overall moving forward.
Recommendations for Researchers	Further research is needed to better understand how the pandemic impacted individual students' research and writing processes, including adaptive strategies.
Impact on Society	Institutions need to be aware of systemic strain on doctoral students under the best of conditions and be especially aware of the impacts of a crisis and plan contingencies to assist students with a focus on the areas of research design, access to resources, workload, mental health, and finances.
Future Research	Future research should seek out additional perspectives of male doctoral students. Additionally, data capturing perspectives from students at other points in time are needed as the pandemic continued to unfold after this study's data collection period.
Keywords	doctoral education, COVID-19 pandemic, doctoral writing

INTRODUCTION

For doctoral students, the process of designing, implementing, and writing a culminating project (typically called a dissertation or thesis) is a key part of the learning experience. These projects typically require students to direct their own learning and to manage setbacks, obstacles, and challenges as they arise. During the COVID-19 pandemic, doctoral students around the globe had to undertake this key learning experience in the context of a global crisis.

Starting in early 2020, measures required to curb the spread of the virus—such as campus closures, lockdowns, and required quarantine periods—suddenly changed doctoral students' lives. The purpose of this study was to document the impacts of the unprecedented COVID-19 pandemic for doctoral students who were proposing, conducting, or writing up their doctoral thesis, dissertation, or other culminating project.

We asked the question, "In what ways is the COVID-19 pandemic impacting doctoral students' progress on their culminating projects?" Recognizing the critical importance of the doctoral project, this study aimed to document the impacts of the COVID-19 pandemic for doctoral students who were proposing, conducting, or writing up their doctoral thesis, dissertation, or other culminating project. We were curious about how students from around the world would describe the pandemic's impact on their progress towards completion of their culminating project. Not only did we want to document these adaptations and forced changes, but we also wanted to see the ways those impacts hindered or helped them toward the completion of the culminating project. By looking for both hindrances and helpfulness, we wished to see how the hindrances changed students' lives during the global crisis and how the helpfulness might illuminate the gaps in completing culminating projects under normal, pre-COVID-19 working conditions.

LITERATURE REVIEW

We present the review of literature in three sections. First, we set the context for the larger circumstances under which doctoral students pursue their terminal degrees. Next, we discuss the impact that past pandemics have had on institutions of higher learning. Lastly, we review current literature on how COVID-19 has affected doctoral students.

DOCTORAL EDUCATION

Doctoral students are in training to learn how to create knowledge, and the role they play in the knowledge economy calls into question how they are viewed by the degree-offering institutions as well as the societies they enter into upon completion of their terminal degree. From the perspective of doctoral students, tuition costs are on the rise across the board among American colleges and universities, and Mintz (2021) argues the rising costs are in part due to a general adoption of neoliberal policies and politics that suggest education is a private good. Mintz writes, “Although the potential for personal gain is far from new, in the last few decades, the view of education as a private good and the neoliberal corollary that emphasizes individual responsibility and individual consequences have increasingly framed the discourse of education policy” (p. 84). Operationalized, this view of education translates into higher tuition costs as the responsibility of paying for an education is passed down to the student. It also translates into viewing students as customers, with academic institutions competing in a free market to attract students. In addition to higher costs, PhD students will find fewer academic job prospects once they graduate. According to Larson et al. (2014), a mathematical model can easily demonstrate that the supply of jobs in academia runs far short of the demands based on an average number of students that a PhD supervisor can produce over the course of that supervisor’s career. Faced with high costs and low job prospects, a growing number of graduate students are choosing to obtain a professional doctorate (as opposed to a research doctorate) to increase their job prospects, and doctoral degree offering universities have accommodated this demand (Fink, 2006; Wildy et al., 2015). The rising prominence of a professional doctorate also signals a sea change in where knowledge is created, who contributes to knowledge creation, and how this knowledge economy is viewed (Fink, 2006; Jones, 2018). Marshall (2016) signals that this trend of academic capitalism, aligned with neoliberal tendencies, means that universities are moving toward “generating intellectual capital, trademarking and licensing, and hiring graduate students as knowledge workers” (p. 298). Whether they are seeking research or professional doctorates, it is under this broad context that doctoral students are pursuing their terminal degrees.

Students in doctoral programs have gone through a rigorous selection process, and they are typically high academic achievers, so it is perplexing to see relatively lower rates of completion among this group of students. In the United States and Canada, doctoral program completion rates hover around 50% despite a general increase in enrollment for a twelve year period ending in 2010 (Sverdlik et al., 2018). Hasgall et al. (2019) reports a two-thirds completion rate for approximately 300 European universities that participated in a survey. Numerous studies have examined why doctoral students experience difficulties completing their degrees, and doctoral students appear to experience similar challenges across disciplines and program delivery formats. These challenges may be of a personal nature, including stress (Barry et al., 2018), gender-related issues (Carter et al., 2013; Erichsen et al., 2014), feeling like an imposter (Fernandez et al., 2019), and managing the identity transformation process (Koole & Stack, 2016). There are also academic and institution-based challenges, such as funding (Fernandez et al., 2019), the academic environment (McAlpine, 2017), and managing relationships between the advisor and the advisee (Owens et al., 2020). Together, these challenges on a personal and institutional level contribute to doctoral students’ attrition rates, with additional issues related to technology and to faculty and peer interaction for online doctoral students (Deshpande, 2016; Lee et al., 2020). When doctoral students reach their culminating project phase—i.e., the thesis or dissertation, which in some doctoral education models reflects the entirety of the degree requirements—the nature of their work becomes more isolated as these projects typically require students

to direct their own learning and to manage setbacks, obstacles, and challenges as they arise. Studies reveal the vital importance of the culminating project to doctoral students' completion or attrition. Devos et al. (2017) found that what made the difference between completers and non-completers was that completers sensed they were making progress, without too much distress, on a project that made sense to them. Van Rooij et al. (2021) measured the importance of PhD project characteristics and found that high workload was related to PhD students being less satisfied, less likely to finish in time, and more likely to consider quitting.

PANDEMICS AND EDUCATION

Prior to the COVID-19 pandemic, literature on education and pandemics documented the contingency plans institutions have developed to manage emergency and crisis situations. They had already learned valuable lessons on handling a pandemic when the 2009 H1N1 swine flu caused school closures (Dooyema et al., 2014) and when the SARS epidemic hit Hong Kong, among other places (Hung, 2003). Specifically, Ekmekci and Bergstrand (2010) reviewed the contingency plans of 20 American universities and found that these plans largely followed the guidelines set by the Centers for Disease Control (CDC). The authors' consolidation of these contingency plans reveal that these universities had an IT-related plan, which focused on implementing distance learning; a faculty-related plan, which requested teaching staff to learn how to move their in-person courses online; and a student-related plan, which was mostly related to information dissemination about the H1N1 virus. Another contingency plan provided general principles on how a university should plan for academic continuity in times of a crisis. Regehr et al. (2017), University of Toronto administrators, suggest that academic continuity can be implemented by thinking ahead about four aspects: learning should continue; course revisions should abide by academic program integrity; students should be given choices; and information should be communicated in a clear and timely manner. Despite solid crisis planning, the effect of continuing learning in a different format has its own repercussions. After learning online for one week out of necessity, Day's (2015) students described their difficulty concentrating, displeasure with lower levels of teacher-student interaction, and inability to use the instructor's body language to help them decipher course content importance. Similarly, Nickerson and Shea (2020) reported that their undergraduate chemistry students faced both personal and home environment difficulties when they were asked to transition from in-person to online learning during the COVID-19 pandemic. More recently, reflections on how the COVID-19 pandemic has affected doctoral students have become available.

DOCTORAL STUDENTS AND THE COVID-19 PANDEMIC

It should not come as a shock that some doctoral students are having an even harder time trying to complete their degrees during the COVID-19 pandemic. These experiences range from feeling abandoned to finding ways to manage the disruptions to their dissertation progress. In Le's (2021) reflection of her experience as an international doctoral student at the University of Melbourne, she discusses the impact that cost cutting measures and graduation postponement have had on many doctoral students. These academic continuity decisions have hit international doctoral students, who are often teaching or research assistants dependent on their university for financial support, especially hard. Using an ecology framework, Wang and DeLaquil (2020) weigh the lost opportunities to be socialized into their American academic discourse community as a result of this "macrosystem disaster" (p. 1347). They recount not being able to receive timely feedback from their advisors, not being able to share their research progress with their peers, and not being able to build the types of networks they would need for future employment opportunities. Bal et al. (2020) share the COVID-19 experiences of six doctoral students in various stages of their respective programs in five American universities. Focusing on how these six students tried to overcome their challenges, they share what it was like to take on the poly roles of being a parent, a teacher, an administrator, a course developer, and a teaching assistant as well as a doctoral student during the pandemic. They write about coping with the confusion of their children's online learning schedules, being overwhelmed by calls for help

from their colleagues who were not technologically savvy, not having access to course materials, moving their in-person courses online, and dealing with widespread undergraduate student confusion over the transition from in-person to online learning. Whether it is hitting the pause button on their dissertation or shifting to focus on a less cognitively demanding part of their dissertation, all six authors eventually managed to find a way to make progress on their dissertation during the pandemic. However, all of them had to refocus their energy on their work and/or their personal lives first before reorienting themselves to their dissertation. These individual stories corroborate the findings of a National Science Foundation funded study about the impact of COVID-19 on graduate students. Early findings, shared with the *Chronicle of Higher Education* and reported by Zahneis and June (2020), reveal issues related to mental health, graduation delays, and changes in the graduate students' career plans. These doctoral students would be right to be concerned about their future career prospects within academia, as Kelsky (2020) advises that pandemic-related, widespread, and deep budget cuts mean hiring freezes, conference cancellations, and scholarly journal operational disruptions.

METHODS

To document impacts of the COVID-19 pandemic on doctoral research writing, we created a brief online questionnaire for doctoral students. The questionnaire included demographic questions and a question asking respondents to rate the degree to which the pandemic impacted their progress on their culminating project, both of which allowed us to describe the group of doctoral students who responded to the questionnaire. Our main interest was to collect qualitative data in the form of responses to three open-ended questions. These open-ended questions asked about impacts, challenges, and benefits of the pandemic. Taking a qualitative approach to this data, our analysis focused on eliciting categories of experience from the participants' open-ended responses.

RESEARCHER DESCRIPTION

We are all PhD-holding scholars who have investigated our own experience as doctoral students completing dissertations. Our shared academic background is English composition and applied linguistics, which means we have expertise in first- and second-language academic literacy in English. We also bring diverse perspectives to our research—and value the inclusion of diverse voices—as a result of our lived experiences and sociocultural identity characteristics. Alice is an Asian American woman teaching at a university in East Asia and has a background in Ethnic Studies and English language teaching. Shelah is an African American woman who teaches graduate classes and directs a writing center at a university in the east central United States. William is a White male and father of two young children; they direct the first year composition program at a university in the mid-Atlantic region of the United States. Kathleen is a White woman and mother of young children living in the north central United States; she works as an independent consultant supporting graduate students and faculty with academic writing.

PARTICIPANTS

A total of 235 participants completed the online questionnaire's demographic questions and at least one of the three open-ended questions. Of this total, 222 (94.5%) participants indicated they were currently enrolled in a doctoral program, 11 (4.7%) had graduated from their doctoral program after the COVID-19 pandemic began, and 2 (0.9%) had withdrawn from their doctoral program since the pandemic began. Of the 222 currently enrolled, all were currently working on the culminating project (e.g., thesis, dissertation) when they completed the survey. Most participants identified as female ($n = 205$, 87.2%) while 27 (11.5%) identified as male, 1 (0.4%) identified as transgender and 2 (0.9%) selected "other gender identity." Most participants described themselves as white ($n = 166$, 70.6%), with 31 (13.2%) describing themselves as a person of color (POC), 21 (8.9%) selecting "other racial identity," 10 (4.3%) indicating they did not identify with a particular racial identity and 7 (3%) describing themselves as multiracial. Participants' self-reported annual household income covered the

socioeconomic spectrum, but as might be expected with graduate students, was tilted toward the lower end: 105 (45%) participants reported annual household income of less than US\$40,000; 77 (33%) reported annual household income between US\$40,000 and US\$99,999; and 51 (21.9%) reported annual household income of more than US\$100,000.

Participants' academic disciplines were diverse. The most common discipline was education ($n = 59$, 25.4%), followed by psychology ($n = 28$, 12.1%), biological and biomedical sciences ($n = 27$, 11.6%) and social sciences ($n = 27$, 11.6%). Other disciplines represented by the respondents spanned the humanities, STEM fields, and business. Most participants indicated their doctoral programs were at R1 ($n = 108$, 46%) or R2 ($n = 53$, 22.6%) institutions, which means their institutions are doctoral universities engaged in very high or high research activity. Almost 16% ($n=37$) of the participants were not sure of their institution's classification, which likely reflects the participation of students at programs outside the United States, which do not use the Carnegie classification system to describe their institutions. Participants were most likely to be enrolled in a fully face-to-face doctoral program ($n = 116$, 49.4%), with 89 (37.9%) in combination face-to-face and online programs and 30 (12.8%) in fully online programs.

Most of the participants ($n = 157$, 66.8%) were enrolled in doctoral programs in the United States. Participants' doctoral programs were also located in Canada ($n = 11$, 4.7%), South Africa ($n = 10$, 4.3%), Germany ($n = 6$, 2.6%), the United Kingdom ($n = 6$, 2.6%), Australia ($n = 5$, 2.1%), Portugal ($n = 5$, 2.1%), and 26 other countries. When they completed the survey, most participants were living in the United States ($n = 156$, 67%), while others were living in Canada ($n = 12$, 5.2%), South Africa ($n = 8$, 3.4%), Australia ($n = 5$, 2.1%), and 32 other countries.

PARTICIPANT RECRUITMENT

To encourage participation of a diverse group of doctoral students from different geographic locations, institutions, and disciplines, the survey invitation was distributed through a nonprofit organization, the National Association of Graduate-Professional Students (NAGPS), and a business, The Dissertation Coach. NAGPS members consist of over 500,000 graduate and professional students at both public and private institutions throughout the United States (Glover, 2019). The NAGPS shared the survey invitation on its social media accounts and email list in September 2020. To reach participants outside the United States, the survey was also distributed through the Facebook page for The Dissertation Coach, a business that offers "personalized dissertation and thesis coaching and consulting services to doctoral students in a wide range of fields in the United States and around the world" (The Dissertation Coach, 2020). The survey invitation was shared with The Dissertation Coach's 180,000 Facebook followers in August 2020. Distributing a short, concise survey through trusted organizations followed the recommendations of Saleh and Bista (2017), who studied perceptions of graduate students regarding factors influencing online survey response.

To be included in the study, respondents had to be currently enrolled in a doctoral program or to have graduated from or withdrawn from their doctoral program since the pandemic began. For those currently enrolled, they had to be in the culminating project (i.e., thesis or dissertation) stage, rather than in the coursework or exam phase of programs using a coursework-exams-project model.

ETHICAL CONSIDERATIONS

Our research protocol was reviewed and approved by Lincoln University's Institutional Review Board. Ethical considerations in our research design and implementation included both the nature of our relationships with participants and how we safeguarded participants' privacy and anonymity. Our recruitment decisions were based primarily on how we could access the broadest range of participants who might speak to our questions, and secondarily by connections we could use to facilitate recruitment. None of the researchers had any prior relationship with NAGPS before we contacted

them requesting help with recruitment. One of the researchers, Kathleen, had an existing relationship with The Dissertation Coach as an independent contractor. To our knowledge, none of the researchers had relationships with any of the questionnaire respondents. Questionnaire responses were submitted anonymously; respondents could choose to submit an email address with their responses if they were willing to be contacted for a follow-up interview. We safeguarded this personally identifiable information in password-protected files accessible only to the researchers. In our findings below, we include some of the demographic information provided by quoted respondents immediately after their quotes. The demographic information includes race (participants who chose “do not identify with a particular racial identity” have no race listed), gender, country (or U.S. state), and academic discipline. This information does not identify the participants, protecting their anonymity while also giving the reader a sense of the diversity of the individual voices represented in our data.

DATA COLLECTION

Questionnaire responses were collected during August and September 2020. The online questionnaire consisted of demographic questions, a question asking respondents to rate the degree to which the pandemic impacted their progress on their culminating project, and three open-ended questions:

- In what ways is the COVID-19 pandemic impacting your progress on your culminating project for your degree?
- Please describe any challenges you are experiencing as a result of the COVID-19 pandemic.
- Please describe any benefits or coping strategies you are experiencing as a result of the COVID-19 pandemic.

ANALYSIS

Our analysis focused on eliciting categories of experience from the participants’ responses to the open-ended questions. Thus responses to the open-ended questions were condensed and coded with the goal of identifying the categories of experience perceived by doctoral student respondents as the impacts of COVID-19 on their culminating project work. We used In Vivo Coding, which means using “a word or short phrase from the actual language found in the qualitative data record” as a code (Saldaña, 2021, p. 137). We chose In Vivo Coding as our coding strategy to keep our analysis tied to the language used by the doctoral student respondents, and thus to their perspectives. Each of the four researchers independently coded a subset of responses, then discussed the emerging codes to clarify codes and resolve any discrepancies in the coding process. Then each researcher grouped their subset of codes into categories and subcategories and generated thematic statements to explain relationships among the categories. The researchers met again to discuss the categories and themes and to come to a consensus on the final themes to be presented in the results.

An example illustrates our coding process. For the initial In Vivo Coding, as we each read a portion of the open-ended responses, we marked words and phrases that stood out as important and meaningful—those that seemed to get at the heart of the participants’ response to the question. Asked about ways the pandemic challenged students’ progress on their culminating projects, one doctoral student included this sentence in their response: “I am also teaching full time, and there is a lot of uncertainty about what the fall will bring. This can be quite anxiety inducing” (White, Female, Pennsylvania, Education). In that particular statement, three In Vivo Codes were marked: “teaching full time,” “uncertainty,” and “anxiety.” Once all of the In Vivo Codes for this question’s responses were marked, the researcher organized those codes into a list that could be sorted. This allowed us to stand back and look at a condensed yet comprehensive version of our data. The In Vivo Codes were then sorted into categories and subcategories. Some of the categories were themselves In Vivo Codes. For example, “uncertainty” and variations of it appeared several times in the data and stood out as a category of its own. Other In Vivo Codes were grouped in larger categories. From this example, “anxiety” was placed within a category of “mental health” (also an In Vivo Code present in the data) along with another In Vivo Code, “depression” The In Vivo Code “teaching full time” was

placed in a category called balance, which captured a variety of codes signaling challenges of balancing work, life, and school responsibilities. The categories identified for the question about challenges were: balance, caregiving, change, concentration and focus, data collection, delay, energy, finances, health, isolation, job market, mental health, motivation, resources, time, uncertainty, and working from home. The next step was to develop thematic statements that described the relationships among the categories; this step allowed us to express the processes we were noticing as we read through and worked with our data, while also giving us the list of categories against which we checked our ideas, making sure we did not leave any categories out. One of the themes based on this set of categories was *Change and uncertainty disrupt motivation and concentration while also causing stress (a health issue), which leads to or exacerbates mental health challenges, most commonly anxiety and depression.* This example shows how original In Vivo Codes from the response excerpt above (*uncertainty* and *anxiety*) made their way into categories and ultimately a theme.

FINDINGS

The vast majority of our respondents felt their progress on their culminating project had been impacted by the COVID-19 pandemic in some way. Regarding the degree of impact, 76 (32.3%) indicated the pandemic had impacted their progress “a great deal,” 69 (29.4%) selected “a lot,” 58 (24.7%) selected “a moderate amount,” and 21 (8.9%) selected “a little,” while 11 (4.7%) indicated the pandemic had “not at all” impacted their progress.

In their responses to our three open-ended questions, survey participants frequently mentioned time. *Time* emerged as an umbrella category for the outcome of specific changes brought about by the pandemic. Some changes resulted in students devoting either more or less time each day to their work on their culminating projects compared to the time they were devoting before the pandemic. Changes also lengthened or, occasionally, shortened the overall timeline of project completion. Details of our participants’ responses allowed us to probe further into the types of changes they experienced. Importantly, we saw that *change* was often coupled with *uncertainty*: for example, an observable change for many was working at home rather than outside of the home. Uncertainty was attached to this change because no one knew when working outside of the home might become an option again. Both observable change and an inner experience of uncertainty were part of various impacts of the pandemic on doctoral writers. These changes and the sense of uncertainty created either benefits or challenges for the doctoral writers. In this section we illustrate the positive or negative impacts in five categories reported by our participants: research design, access to resources, workload, mental health, and finances.

RESEARCH DESIGN IMPACTS

Our survey respondents described how their research was impacted, with many making changes to their research designs in response to COVID restrictions or COVID impacts on their participants and sites. Data collection was the research design element most likely to be impacted. Suddenly, face-to-face experiments with human subjects, observations, interviews, and focus groups were impossible to conduct due to lockdowns, site closures, and the increased risk to participants. One respondent wrote, “I cannot conduct interviews and observations that are school based. My whole project is based on these data”(White, Female, Illinois., Education). From the perspective of a student researcher trying to complete a project on a timeline for their degree, the time required to make research design changes was problematic.

For researchers already collecting data, one response was to shift their projects online: “I was doing fieldwork at the moment when lockdown because of COVID was announced, I had to reschedule interviews and do them online”(White, Female, Spain., Social Sciences). Other researchers whose projects require in-person data collection had no choice but to wait: “It will probably hold me back on being able to conduct any sort of pilot testing. The type of research I do requires individuals to be hooked to a variety of physiological measures and cannot be conducted online” (POC, Female,

Texas, Psychology). As one respondent reported, delays with IRB review and approval meant the only way to move forward was to start over:

I had completed my proposal and was in the process of submitting my IRB application when we were quarantined. I submitted my application with modifications. My application was not reviewed (after 2 months with no contact) because no in-person testing was allowed. Even with modifications provided for online testing, my application was not reviewed. This has resulted in me completely changing my dissertation topic and I am in the process of writing my new proposal. (Multiracial, Female, South Carolina., Education)

Even if data collection protocols could be modified for online delivery, some respondents found their target participants were less available, impacting recruitment and response rates. One wrote "As I am surveying nationally elected officials, they are quite busy with the pandemic and some came down with COVID during the data collection process"(White, Female, Ireland, Social Sciences). And another respondent stated, "Availability of potential participants in the study is limited because my target population is high school leaders, who are preoccupied with preparations for return plans" (White, Male, Delaware, Education).

For some of our respondents completing the survey in August 2020, their research design had not yet changed, but they were uncertain about the feasibility of their plans, as one explained:

I am very concerned that my potential participants — middle school teachers — will be discouraged from participating in my study due to the circumstances of the 2020-2021 school year, which are a direct result of the pandemic. My study is set to commence in September 2020, which may be among the most stressful and upsetting times for American educators in the history of American education! (White, Female, Pennsylvania, Education)

Another respondent expressed the uncertainty, saying, "Planning my proposal is difficult as my research will require a great deal of travel to many locations, and I am not sure when/if those places will be safe. Making a timeline is extremely difficult" (Female, Canada, Bio Sciences). Survey respondents reported both change and uncertainty regarding research design. Some students were delayed because they could not start their data collection or had to put it on hold. Many changed their data collection plan, and these research design changes required time to plan, write up, have reviewed, and implement, extending timelines for many.

While most research design changes were perceived as challenges, some survey respondents reported benefits. For some, shifting data collection online meant improved access to participants. For example, one respondent said the change "allowed me to recruit women outside of my city" and "I was able to intervene with participants that I otherwise would not have been able to" (POC, Female, Tennessee, Nutritional Science) while another was "able to recruit more interviewees" (White, Female, Pennsylvania, Education). One participant reported an improved data collection process because "[i]nterview participants were already familiar with the Zoom platform for virtual interviews" (POC, Female, Tennessee, Nutritional Science). And while most respondents described research design changes causing delays to their project timelines, at least one experienced the reverse, stating that "Changing the focus of my data collection allowed me to complete interviews approx. 7 months earlier than I otherwise would have" (White, Female, Canada, Social Sciences).

ACCESS IMPACTS

Survey participants experienced challenges surrounding the sudden lack of access to spaces, resources, and people they needed most in order to move forward with their research. This category overlapped with the research design impacts category when the inaccessible spaces, resources, or people were directly related to the research project itself. For example, those whose studies depended on conducting experiments or field observations lost access to much needed locations. One respond-

ent noted, "I had to pause all my laboratory work" (POC, Female, South Africa, Agriculture). Another lamented, "I have had to cancel final research trips I needed to complete as I am writing my dissertation" (White, Female, Arizona, History). Another wrote, "Analytical facilities have been shut down or extremely limited access" (POC, Male, Louisiana, Engineering). Yet another shared, "[The pandemic] has kept me off campus, meaning I can't complete certain vital experiments" (White, Female, South Africa, Bio Sciences). One participant not only lost access to facilities but also lost work already completed: "Plant Extracts were destroyed. Total stoppage of experimental research work due to University shutdown" (Asian, Female, Philippines, Bio Sciences). Other participants had to adapt in another way to closed spaces, as one respondent explained: "I had to completely change my working habits as the university and the libraries were closed and I lost my usual working spaces" (White, Female, Spain, Social Sciences).

Additionally, respondents reported losing access to much needed resources and materials. Library closures and the dearth of online materials were repeatedly mentioned, as one participant shared, "Libraries are closed and I cannot borrow the books and resources I need for my research" (Female, New Jersey, Languages/Literature/Linguistics). Another participant connected losing access to materials to making a research design change, explaining:

No access to material resources, limiting analysis. Will have to change methodology for part of my work. No access to the library for almost two semesters and still no interlibrary loan, so very limited access to printed literature, and consequently less well documented project. (White, Female, Canada, Languages/Literature/Linguistics).

One participant described being stuck without access to archives: "All of my research plans to visit archives have been canceled, with no plans yet to gain access to those archives" (White, Female, Arizona, Visual/Performing Arts).

In addition to being cut off from spaces, equipment, and library materials, participants also reported losing access to people, including their committee members and colleagues. Some focused on the inability to connect with their advisor and/or committee members: One stated that "Casual unscheduled chats with my supervisor are missing greatly" (White, Male, Estonia, Social Sciences) while another reported, "Lack of meetings with my advisor/committee members because they are so busy with managing our programmatic changes from COVID" (White, Female, Tennessee, Language/Literature). One participant felt the uncertainty this lack of advisor access created: "I haven't had any news (very understandably) from my advisor for the last two months as she had to fly back to Europe to take care of her sick father" (White, Female, Canada, Languages/Literature/Linguistics).

Besides missing committee member interaction, many participants noted missing colleague interaction. They described "Seeing my advisor and cohort much less, changing the dynamic in which I generate ideas and access information" (Female, Canada, Bio Sciences) or "No face-to-face meetings, no travelling to the office. No more coffee breaks or water-cooler chats with colleagues. Lack of social interaction with colleagues (online interaction is NOT as productive or the same)" (White, Male, UK, Interdisciplinary). One respondent even noted the psychological impact of no access to program colleagues: "I also have not been able to meet face to face with my dissertation chair and committee. Being isolated from my cohort has created a great deal of disconnect from my department" (White, Female, Arizona, History).

A handful of participants mentioned benefits in terms of access to resources or people. One noted that the availability of online materials had increased. Another found it easier to schedule meetings with their chair, presumably online. One cited "being able to defend online" as a plus (POC, Female, California, Public Admin). Another experienced "creativity with finding ways to access sources from online libraries" (White, Female, Wisconsin, Education). And one noted the perk of "less people in the building so can book equipment for use easily" (POC, Female, Virginia, Engineering). Overall, however, access emerged as a challenge more than a benefit.

WORKLOAD IMPACTS

Survey respondents also reported that their workload impacted their dissertation progress. Because of COVID-19, respondents who were also teaching had to spend time transferring their teaching materials online. One person stated, “All my classes needed to switch to online learning and I needed to figure out how to combine child care and teaching appointments” (White, Male, Estonia, Social Sciences). Besides spending time to move their teaching materials online, teaching or working at home meant spending time caring for family members who were at home as well. One person mentioned, “Trying to balance parenting with dissertation work and TAing has been absolutely impossible but I have no choice” (White, Female, California, Social Sciences). With other family members to care for, some respondents mentioned that the workload increase in the home and work domains reduced their dissertation productivity. One person mentioned, “COVID has increased my own job expectations and has changed my children’s school and childcare needs. Thus, I have less time and more obligations during that time” (White, Female, Kansas, Education). Another wrote, “Full time job workload has increased, leaving less time for research. Child at home at all times has impacted ability to do research” (White, Female, Virginia, Social Sciences).

Other respondents not only had to care for their family members, they also had to home school their children. One person mentioned, “My children were home due to school closure and I had to help them homeschool. One has a disability which consumed even more time” (White, Female, Sweden, Philosophy/Religious Studies). Another added, “I am having to homeschool my 7 year old child, plus manage my full time job online and run the family household” (White, Female, South Africa, Visual/Performing Arts). With their home and job workload increasing, respondents had less time to work on their dissertations. For some, this meant increased stress. One respondent wrote, “Schooling my child, teaching and assessing students online and working on my thesis was terribly stressful” (White, Female, Croatia, Education). For another respondent, the stress was exacerbated with both children and parents to care for:

My anxiety level has sky-rocketed between demands at work, demands at school, and caring for my family. My daughters are both in college, one attending classes on campus and the other has been moved completely online. I am also trying to care for my medically fragile parents who live 300 miles away by arranging and paying for safe in-home care and ordering their groceries and other goods online. (POC, Female, California, Education).

Overall, the increase of workload in the non-dissertation domain of the respondents’ lives meant that they expended much more time and energy to manage their full time jobs and care for their children, parents, and homes, leaving less time for their dissertation. Because of this shift in workload, respondents also reported increased levels of stress and anxiety.

Respondents also reported that other aspects of their workload decreased, which benefited them in some way. These aspects included work meetings and commutes, which were reduced. Without having to go to work, one person mentioned they were “less distracted” by co-workers (White, Female, Montana, Business) while another stated that they no longer had to be “pulled into meetings or asked for help” (White, Male, Louisiana, Engineering). The flexibility to work from home led one respondent to say that they were “able to increase [their] publications” (White, Female, Texas, Bio Sciences). Another added that the pandemic led to “fewer expectations from [their] dissertation committee” (White, Male, Ohio, English Language and Literature).

MENTAL HEALTH IMPACTS

The mental health challenges of the respondents were multifaceted; not only did people have to deal with the mental challenges that come with writing a culminating project, they also had to combat a pandemic. One respondent commented, “my primary challenge has been to my own mental health. I already have a toxic, abusive department and adding this [pandemic] stress did not help at all” (White, Female, Ireland, Social Sciences).

Many respondents focused on the mental health challenges toward completing their work. For instance, one participant experienced “lack of focus,” “lack of motivation,” “lack of energy,” and the “worst procrastination” (Black, Female, New Jersey, Education). Another commented on the decreased motivation and the lack of support as compounding factors: “Less motivated, more pressure from committee, less support from others since they work from home or social distance” (POC, Female, Virginia, Engineering).

Changes to work environments and responsibilities were the source of mental health challenges for others: “being home alone has made it difficult to stay as motivated as I was before the pandemic” (Native American/White, Female, Texas, Psychology); “I have difficulty staying focused on writing or being so mentally exhausted after working from home I don’t want to do anything” (Black, Female, New Jersey, Education). Adding responsibility to children, which cut into daily time available for the culminating project, thus extending the timeline to completion, further compounded the mental anguish:

When I needed most concentration and time, I had to spend days schooling my child and work on my study at night. As a uni[versity] teacher I had to adjust to teaching online. It was terribly stressful to not have the time for my study when I wanted it so much. I managed to finish it but through panic attacks and later than planned. (White, Female, Croatia, Education).

The pandemic also exacerbated existing mental health issues:

I’m an introvert that needs a lot of alone time that I’m just not getting right now, so my energy is very low. The additional underlying stress caused by the pandemic has exacerbated my major depression and general anxiety, which also interfered with working through my data, analyzing, and writing processes. (White, Female, Ohio, Social Sciences).

Some respondents were dismayed by an uncertain future in higher education, impacting their mental state and culminating project:

My degree is in Educational Leadership, and with higher ed field collapsing and prone to hiring freeze, my hopes of landing a job upon graduation are dying. I’m an international student on a visa, so if I don’t get a job, I have no options left anymore. These worries have lost my interest in writing, so I’ve stopped writing and researching completely. Out of fear and depression, no work is being done. (POC, Male, Texas, Education).

The pandemic crisis also raised uncertainty about the significance of research projects, as another respondent shared, “[I’m] wondering about the worth of a theoretical humanities project in a pandemic” (White, Male, Ohio, English Language and Literature).

Finally, many respondents expressed the general mental toll of living during a pandemic as evident in the following statements by five different respondents:

“[I am] psychologically affected by the pandemic, e.g. not being able to see family /access my support network” (White, Female, UK, Business).

“There is so much going on around (home and in the world) that full concentration is difficult” (White, Female, Nevada, Education).

“My concentration levels are terrible right now. Things feel impossible. I feel powerless” (Latina, Female, Brazil, Social Sciences).

“I have severe anxiety due to the possibility of being sick and transmitting to loved ones” (White, Female, Portugal, Visual/Performing Arts).

“I can’t concentrate or focus. The world is so overwhelming” (Black, Female, Texas, General Studies).

Despite these challenges towards mental health, some respondents did report benefits to the structural changes brought on by the pandemic. In general, people were able to get “more sleep” (multiple participants), “focus on nutrition and physical health” (White, Female, Oklahoma, Social Sciences), “reconnect to the outdoors” (White, Female, Minnesota, Education) have “time to exercise—this is the only thing that keeps me sane” (White, Female, South Africa, Visual/Performing Arts), and have “more time with family” (multiple participants). All of these activities reportedly benefited the person’s mental health. Some respondents focused on the more direct benefits to their mental health because the situation “increased chance for self-reflections and meditation” (White, Male, Arizona, Psychology) and gave them “more time to think (White, Female, Indiana, Foreign Languages).” Others experienced benefits to their professional lives: “No dilemmas of choice between writing the thesis and social events” (White, Female, Germany, Foreign Languages), “not having to dress up for meetings and putting on my 'professional persona'” (White, Female, North Carolina, Social Sciences) and “less guilt being away while writing and researching” (POC, Female, California, Education). Finally, one respondent reported a benefit of the pandemic presenting a sense of normalcy: “isolation of the dissertation process felt normal when the state was in a slight lockdown” (White, Female, Texas, Education).

FINANCIAL IMPACTS

Many financial impacts affected participants’ mental health and/or workload, which directly affected their dissertation progress, as evidenced above. Survey respondents described financial impacts ranging from income losses to funding losses to health care costs. They also expressed fear of potential impacts in these categories. Some partially lost income while others lost all of their income. Those who partially lost income shared, “My wage is now almost a third of what it was before and I am struggling to pay my bills” (Female, Japan, Cultural/Gender Studies) or “My husband’s salary was cut in half - leading to lifestyle adjustments” (White, Female, Texas, Education) or “Most of my challenges during the pandemic have been financial. It is very difficult owning a small business right now financially” (White, Female, Ohio, Education).

Those who lost all their income wrote even more heartbreaking comments: “My husband has been let off from work so we're struggling financially” (South Asian, Female, Pakistan, Physical Sciences) or “Prior to covid, I had to get a job in another lab as a lab tech since I am no longer supported by a GA-ship. That job stopped when campus closed, so I had to file for unemployment” (White, Female, Maryland, Agriculture). Others wrote, “Losing my job and income was incredibly stressful and caused a lot of anxiety” (White, Female, Colorado, Education) and “Lost my only part-time job. No flow of income and no savings. No financial empowerment” (POC, Male, Texas, Education). This comment painted the saddest picture: “We had to limit our meal times to manage our money better. We couldn't find online jobs so we were severely financially challenged” (South Asian, Female, Pakistan, Physical Sciences).

Other participants lost income and were forced to find jobs or work more, which then interfered with their dissertation progress. One wrote, “My partner is unable to return to work and we are struggling financially. I have had to undertake extra contract/sessional work so we can survive. This has hindered the progress of my PhD” (White, Female, Australia, Social Sciences). Another explained, “Due to loss of income via self-employment of spouse impacted during COVID, I have had to find any form of work that takes time away from PhD work” (White, Female, California, Interdisciplinary). These comments indicate how financial impacts resulted in less time to spend on culminating project work.

A few participants reported losing educational funding as well. For example, one respondent lost “departmental funding due to budget restrictions” (White, Female, Delaware, Social Sciences). Other responses linked loss of funding to extended timelines: “scholarship funds ran out (I passed 3 years and am not finished yet) and now using savings and superannuation funds for living expenses” (Multiracial, Female, Australia, Education). Another example linked funding loss to extended timeline,

with the financial impact compounded by lost income: “Fellowship money ended in May and am now on personal finances to finish because of the multiple delays this year. Lost my adjunct teaching position” (White, Female, Massachusetts, Family and Consumer Sciences).

Finally, one respondent reported significant health care costs, sharing, “Had Covid in March. Over \$15,000 impact.” Another said her “major challenge was staying healthy (no health insurance because [my institution’s] hourly employees do not qualify for health benefits)” (White, Female, North Dakota, Education). She feared incurring health care costs without the insurance to cover them. This is an example of how the uncertainty surrounding a potential financial impact was experienced as a challenge of the pandemic.

Very few participants mentioned a positive financial impact. Two students noted spending less than usual, saying that they “saved money by not using gas and going out to eat” (White, female, South Carolina, Engineering) or that they had “less cost in terms of going out or staying in coffee shops” (Female, Philippines, Business). Others were aided by suspended penalties or bills: one “was able to pull money out of 401K to pay off all our debt without penalty” (White, Female, Texas, Education) and another noted “student loan payments have been suspended” (Female, Canada, Bio Sciences). One respondent pointed to her “stimulus check, care act funds” as helpful (White, Female, Texas, Education), and another even started her own online business, though we can speculate doing so may have limited time spent on her dissertation.

DISCUSSION

This study yielded five categories of COVID-19’s impact on the participants’ doctoral progress: research design, access, workload, mental health, and finances. Separating these impacts into challenges and benefits, we see that some of these challenges existed for doctoral students before the pandemic, and were either exacerbated or assuaged depending on how other stakeholders managed the pandemic. In this section, we note the through lines across the five impact categories. First, we discuss doctoral students’ relationships with their supervisors and how the pandemic compounded existing relational issues. Next, although the stress that comes with dissertation writing is nothing new, the pandemic created sudden and unpredictable fluctuations in workload from different aspects of the doctoral students’ lives. Moving from the personal to the institutional, the pandemic revealed the inequality of a system built somewhat on the backs of doctoral students as knowledge workers. Lastly, we complicate the idea of progress in a dissertation and how the pandemic may have helped our participants define what is meaningful to them.

RELATIONSHIPS WITH SUPERVISORS

Owens et al. (2020) found that the 18 doctoral students in their study had trouble managing the relationship with their supervisors, and described students being “at the mercy of a supervisor’s career changes, periods of leave, illness, retirement, redundancy and/or death” (p. 113). The pandemic stressed this often precarious relationship. As Wang and DeLaquil (2020) explained, their academic community was disrupted when everything was canceled; as doctoral students, their conference cancellations meant missed networking opportunities, and closed campuses resulted in fewer connections with faculty members. Our findings echo both the findings of Owens et al., and Wang and DeLaquil. Because the advisor-advisee relationship is defined by the supervisor, doctoral students were left to figure out where the boundaries were when asking for meetings during a global crisis. Although our data also showed that there were advisors who made themselves more available to their doctoral students during the pandemic, the student was placed in a relatively powerless position and had to rely on their supervisors’ willingness to make accommodations. Altogether, these student-supervisor relationships fell well short of the types of relationships desired by both students and supervisors (Taylor et al., 2018). The pandemic changed many stakeholders’ priorities, and some doctoral students experienced more challenges as a result.

STRESS AND WORKLOAD

That doctoral students experience high levels of stress has been a common finding in many research studies. For instance, Barry et al. (2018) found that the 81 doctoral students in their study experienced higher levels of anxiety, depression, and stress when compared to people in the same age group in the general population in Australia. The causes of their doctoral student stress included relationships in their academic community, resources, and inadequate disciplinary and writing knowledge. A high workload also resulted in higher stress levels among doctoral students (van Rooij et al., 2021). During the pandemic, Bal et al. (2020) shuffled their schedules and re-prioritized their workloads to survive during the global crisis; one author delayed the dissertation due to research design issues, two others worked overtime to help colleagues transition to teaching online, and another lost access to course materials due to a campus closure. Our study findings corroborate these workload issues. Although stress related to funding and problematic academic communities existed before the global crisis (Fernandez et al., 2019; McAlpine, 2017), our study showed that these issues were exacerbated by the pandemic. Other stress-inducing factors such as increased workload, caring for family, and research design changes were mainly a direct result of the pandemic. Ultimately, the pandemic exposed existing problems in an academic capitalist system (Marshall, 2016) where doctoral students may serve both the roles of a knowledge creator (via their dissertations) and a knowledge worker (via their roles as teaching assistants or contingent faculty).

While many respondents mentioned these stress-inducing factors as challenges, there were a few who stated that their stress levels were reduced. These respondents were able to spend more time meditating, exercising, sleeping, and eating better. The pandemic forced many of our study's participants to re-evaluate their priorities, and some had the luxury to act on their new priorities. In other words, the pandemic exposed many of the existing problems of doctoral writers, such as the high stress of juggling dissertation writing and a job, while simultaneously demonstrating that doctoral students can complete their dissertations when given sufficient time and space to do so.

INSTITUTIONAL CONTINGENCY PLANS

The pandemic's impact on doctoral students reflected less than ideal contingency planning on an institutional level. As Regehr et al. (2017) advised, academic continuity should be every university's first priority even during a crisis, and every accommodation should be made to ensure uninterrupted learning. However, our findings indicate many ways doctoral students' learning was interrupted while those same students were tasked with delivering the university's contingency plan of online instruction. These students seemed to bear the brunt of the pandemic burden, essentially becoming knowledge workers in the academy working to keep the academic machinery running (Marshall, 2016). It seemed like doctoral students experienced a double-edged sword as both students and teachers during the pandemic.

In contrast, institutional contingency plans seemed to have little effect on doctoral students who had been planning on collecting data electronically or who had already finished collecting data. For this group of students, the pandemic benefited them because their research participants became more familiar with technology, and these dissertators could spend more time writing their dissertation, respectively. The pandemic appeared to create a chasm between the haves and the have-nots: Those who had data and were ready to write completed their terminal degrees, taking advantage of accommodations given to everyone during the pandemic, while those who did not have data suffered delays.

COMPLICATING THE NOTION OF PROGRESS

While there were exceptions, which we have pointed out, most of our survey respondents would likely say their "progress" toward their degree had been disrupted and delayed due to the pandemic.

But could examining our notion of “progress” in the context of doctoral thesis/dissertations complicate this view? In our experience, most doctoral students focus on time to degree, and they always wish they were moving faster toward gaining their credential--to be fair, with many students bearing the expense of their doctoral education, there is a financial incentive to finish faster. But this constant push to speed up “progress” may work against learning. In the context of professional academic work, Berg and Seeber (2016) argue that the stress and dysfunction of corporatized higher education diminishes professors’ quality of life, teaching, and research, and that the corporatized values of efficiency and measurability can be resisted by embracing principles of the Slow movement (especially the Slow Food movement). They suggest that to resist corporatization one must first recognize and then reject the conceptions of time, students, colleagues, and research that corporatization promotes. For example, the corporatized perspective views research as products—publications—and likes to count them; the more the better, and therefore the faster produced the better. By contrast, the Slow perspective views research as a process that must unfold in its own time, with periods of rest, and which cannot be sped up. Imagining these notions taken into the context of doctoral work during the pandemic, an alternative view to the pandemic as a disruption is that these students have had unique learning opportunities during the pandemic by being forced to pause their work, assess their resources and constraints, and, in some cases, create entirely new research designs. Time to degree is not the only metric of progress; depth of learning may actually have been enhanced for some students as they solved problems through the crisis. Of course, we want to be careful here not to minimize the importance of institutional support for student learning, nor do we want to excuse institutional exploitation of student workers as a “learning opportunity.”

LIMITATIONS

Our purpose was to collect qualitative data to begin documenting the categories of impacts experienced by doctoral students working on their theses/dissertations during the pandemic. Our categories do not necessarily reflect all of the categories of impacts and our finding about the degree of impact cannot be generalized to all doctoral students. One possible limitation to consider is that doctoral students who felt they had experienced significant impacts were more likely to respond to the survey, and that a representative sample of doctoral students could reveal more students who felt the pandemic impacted their progress little or not at all. Additionally, our results may be influenced by the gender identification of our respondents. While female students are the majority of post-baccalaureate students in the United States, where most of our participants are enrolled, among our respondents the gender imbalance is much more striking: in the US in fall 2018, female students made up 60 percent of total post-baccalaureate enrollment, and male students made up 40 percent (National Center for Education Statistics, 2020), while the majority of our respondents identified as female (87%) and only a small portion (11%) identified as male. Further research on doctoral students’ pandemic experiences should ensure that male perspectives are included.

IMPLICATIONS

The implications of the study first indicate that institutions need to be better prepared with contingency plans for doctoral students, especially in the areas of finances, resource access, workload, research design, and mental health. The areas contain individual problems that easily extend to other areas and affect a student’s overall person. For example, a sudden change in a student’s financial situation may increase stress that will affect the student’s mental health and ability to complete work. Contingency plans built around the areas of finances, resource access, workload, research design, and mental health may assist an institution’s adaptation to abnormal circumstances.

Further, reflection is warranted on doctoral students and program priorities, even under the best conditions. For some respondents, the changes brought on by the COVID-19 pandemic created a better environment for completing their culminating project. As the ultimate capstone project for a student, a doctoral thesis needs to be the number one priority of both students and institutions. Prospective

students should inquire about an institution's focus towards the overall development and professionalization of a student into the field. Programs should have a clear mission and vision for their doctoral students that indicates their priorities. Instituting flexibility into program design from the onset may provide the nimbleness necessarily to operate under the dynamic conditions of the modern world.

FUTURE RESEARCH

Because this survey provides a high-level overview of categories of experience, future research should look more closely at individual experiences to better understand how the changes resulted in either challenges or benefits and how dissertation writers coped/adapted in response to the changes. Gathering additional data points to document the experience as the pandemic and its impacts have continued to unfold would provide a longer-term perspective from which we might learn. Research which compares graduate students' circumstances (work-life-school balance, introvert/extrovert tendencies, living alone vs. with others, children at home or not, etc.) prior to the pandemic and how those circumstances may have exacerbated problems with dissertation progress or helped mitigate them may produce valuable insights as well. More targeted data collection on coping strategies and resilience during such events is also needed. Gathering perspectives of additional stakeholders in each student's experience—advisors, administrators, IRB personnel, family members, and even their research participants—could provide a more holistic picture. Future research in these arenas could reveal preparedness strategies institutions of higher learning may take to help mitigate the negative impacts of another pandemic or an equally disruptive ongoing public crisis on the lives of its stakeholders, particularly those in that most sensitive final stage of their doctoral degrees. Beyond the pandemic, it may be worthwhile to investigate the growing institutional reliance on doctoral students as teaching staff and the impact of their teaching duties on their dissertation progress.

CONCLUSION

This study has added to the literature on doctoral education by documenting a range of impacts of the COVID-19 pandemic on doctoral students in the thesis/dissertation phase. Our findings shine light on untenable workloads in a system that calls so many students into multiple roles as learners and workers (while many are also caregivers). We also highlight the urgency students feel to complete their degrees, yet question where this urgency comes from and what it might mean to value slowing down. The world and, specifically for this study, the academic system, experienced a statistically rare, yet possible, crisis. The system was placed under significant stress and illuminated issues that had been lurking for some time, such as the trend to view doctoral students not as knowledge creators but knowledge workers. As the world resets, institutions of higher learning need to heed the lessons of the systemic failure not only of crisis management and preparedness, but also of clarifying and prioritizing its mission in doctoral education and the structures that support those students.

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